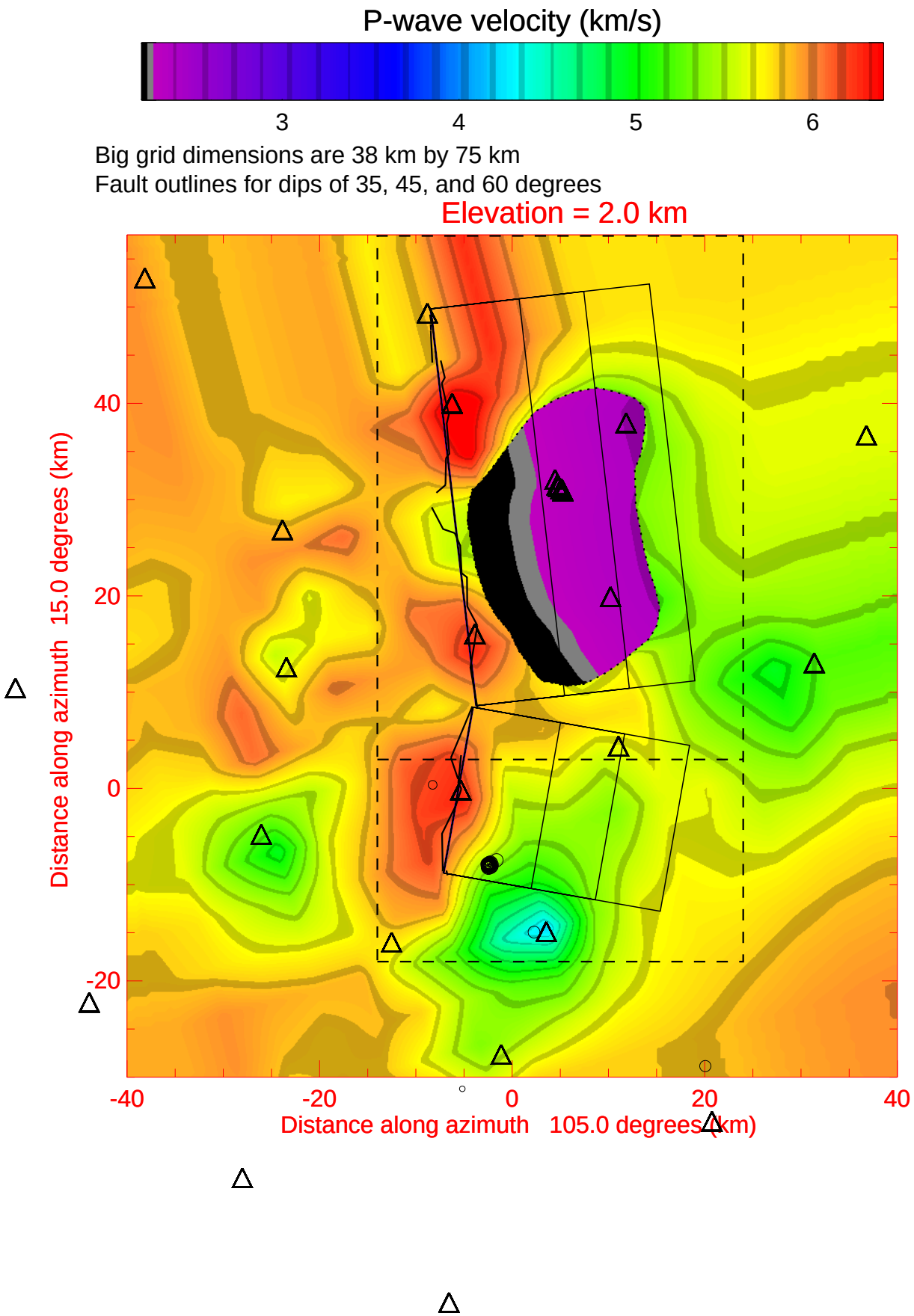
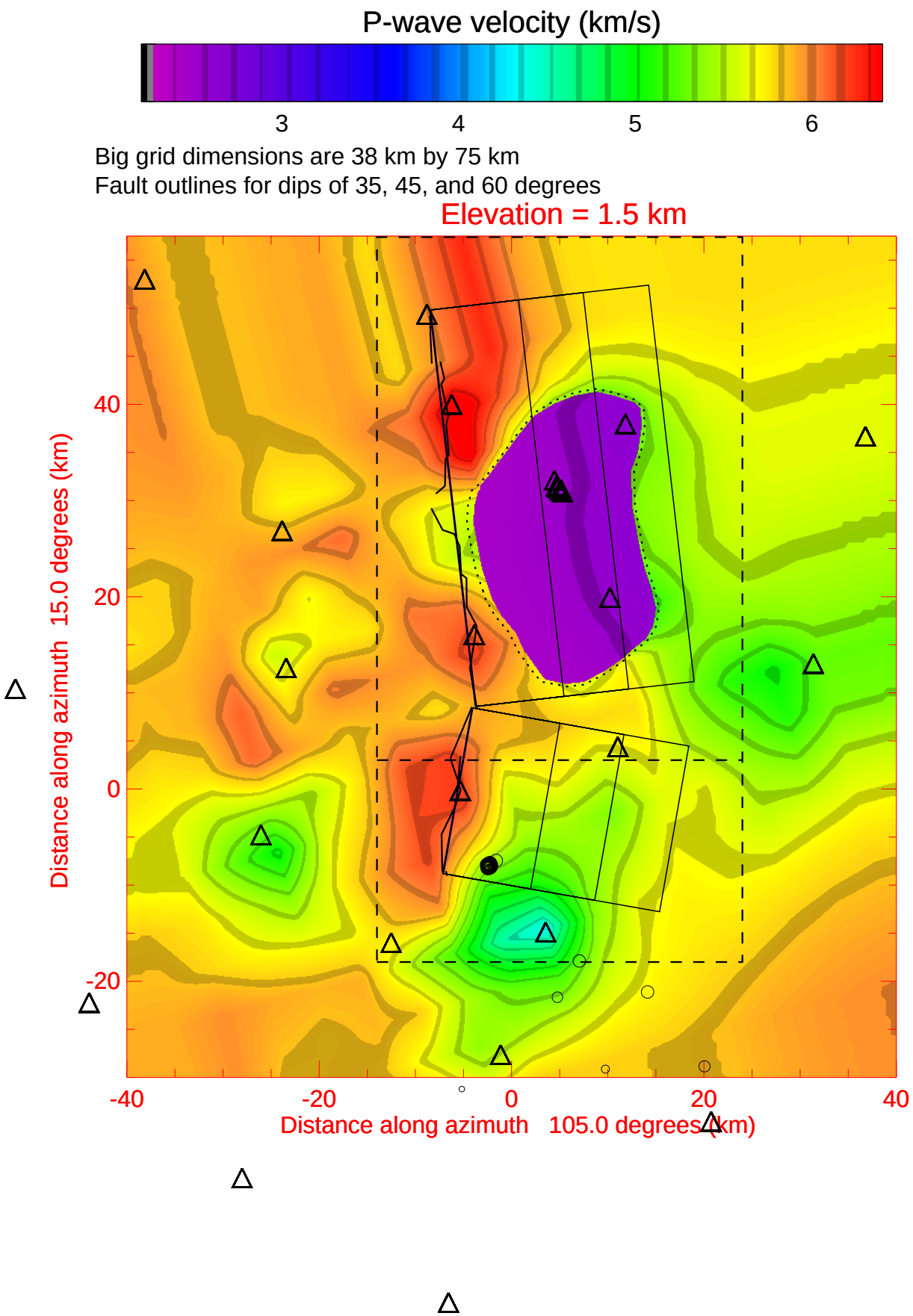
APPENDIX C: 3D *P*-WAVE VELOCITY MODEL PLOTS

This appendix contains plan view (x-y) slices of a 3D velocity model constructed to estimate ground motions for Jackson Lake Dam. The following 33 pages show constant elevation slices through the 3D P-wave velocity model from elevations starting near the free surface (2.0 km on the next page) to 14 km below mean sea level (-14.0 km on the last page) using a 0.5 km elevation spacing. The site response stations near the dam are the cluster of triangles near x=5 km and y > 30 km. The southern-most triangle is on the south abutment (station JLDW). The other triangles are positions of permanent stations of the Jackson Lake seismic network. The large-scale velocity variations are the result of a 3D velocity-hypocenter inversion. The low-velocity basin structure is described in Section 5. The open circles on the plot are hypocenters located with 0.5 km of the elevation (above mean sea level) of the slice. The y-axis is oriented N15E to fit the varies fault segments into a rectangular 3D velocity model grid cube. The x-y positions of the Teton fault segments for dips of 35°, 45°, and 60° are superimposed on each plot. The irregular black polylines on the west side represent an approximation to the surface scarps of the Teton fault from Section 2. Dark blue line segments are a idealization of the fault's intersection with the free surface. The fault segments are projected roughly east downdip based on the local strike of the fault segment. The limits of the 3D velocity model in the 3D elastic finite-difference grids are shown by the large dashed rectangle. A subdivision of the 3D finite-difference grid indicated by the dashed line at y=8 km was not used to produce subgrids for each fault segment. The 2 km elevation limits of the low-velocity basin above the northern Teton fault segment are shown for all elevations as the closed dotted curve. Note the low-velocity basin is terminated at an elevation of -1.0 km.


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = 2.0 km
40
20
0
-20
Distance along azimuth 15.0 degrees (km)
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
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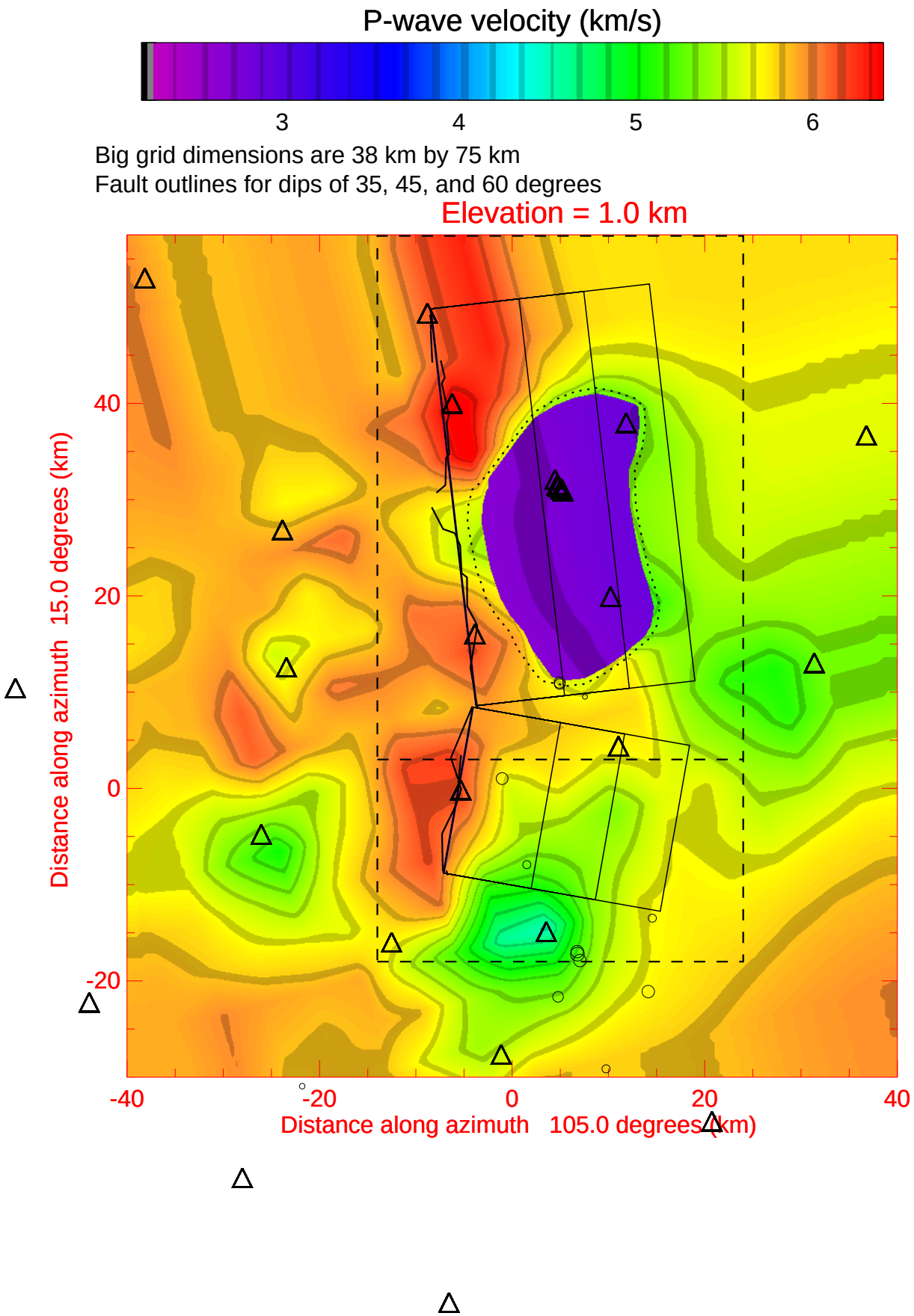
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = 1.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
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6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = 1.0 km
Distance along azimuth 15.0 degrees (km)
40
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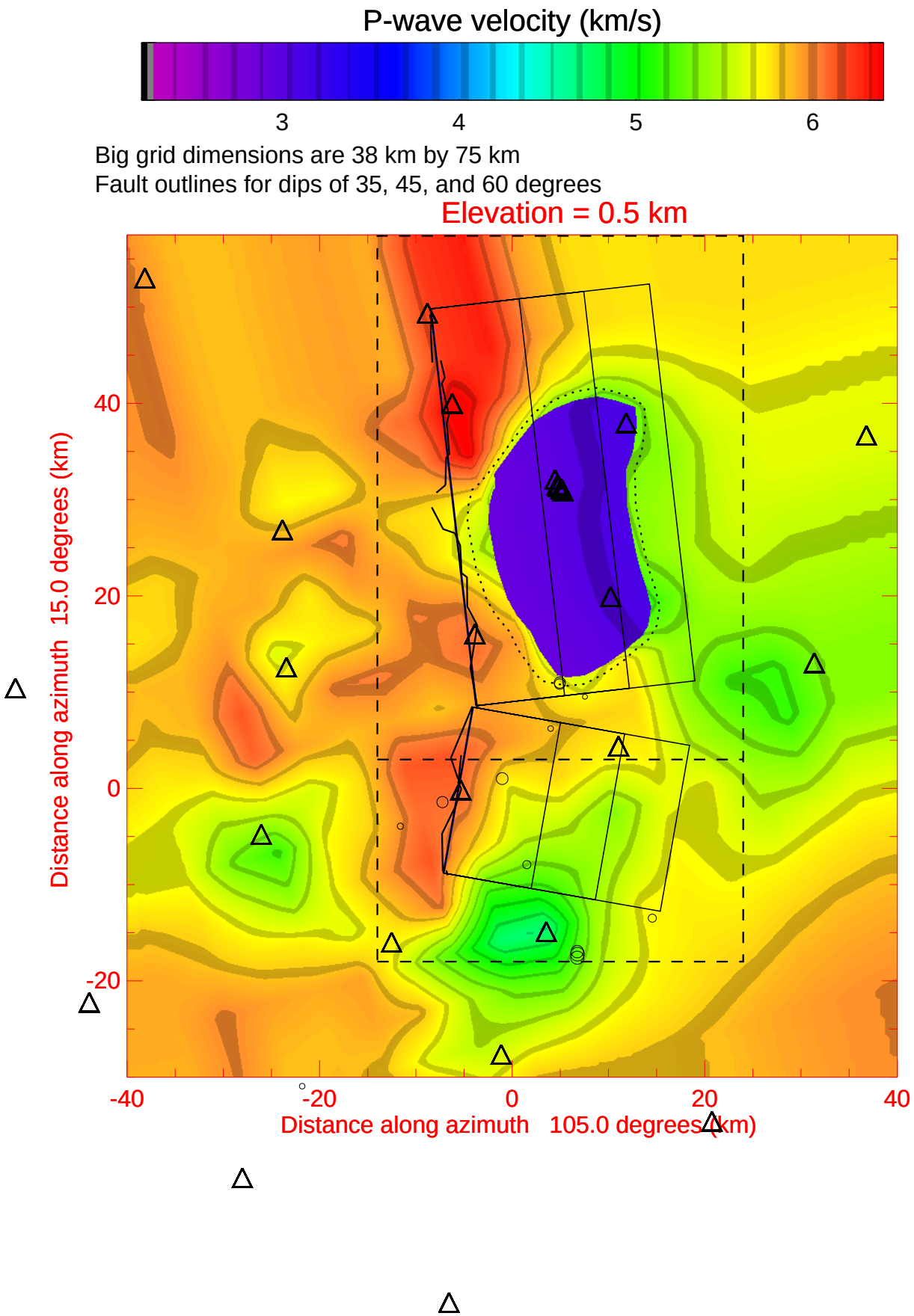
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
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6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = 0.5 km
Distance along azimuth 15.0 degrees (km)
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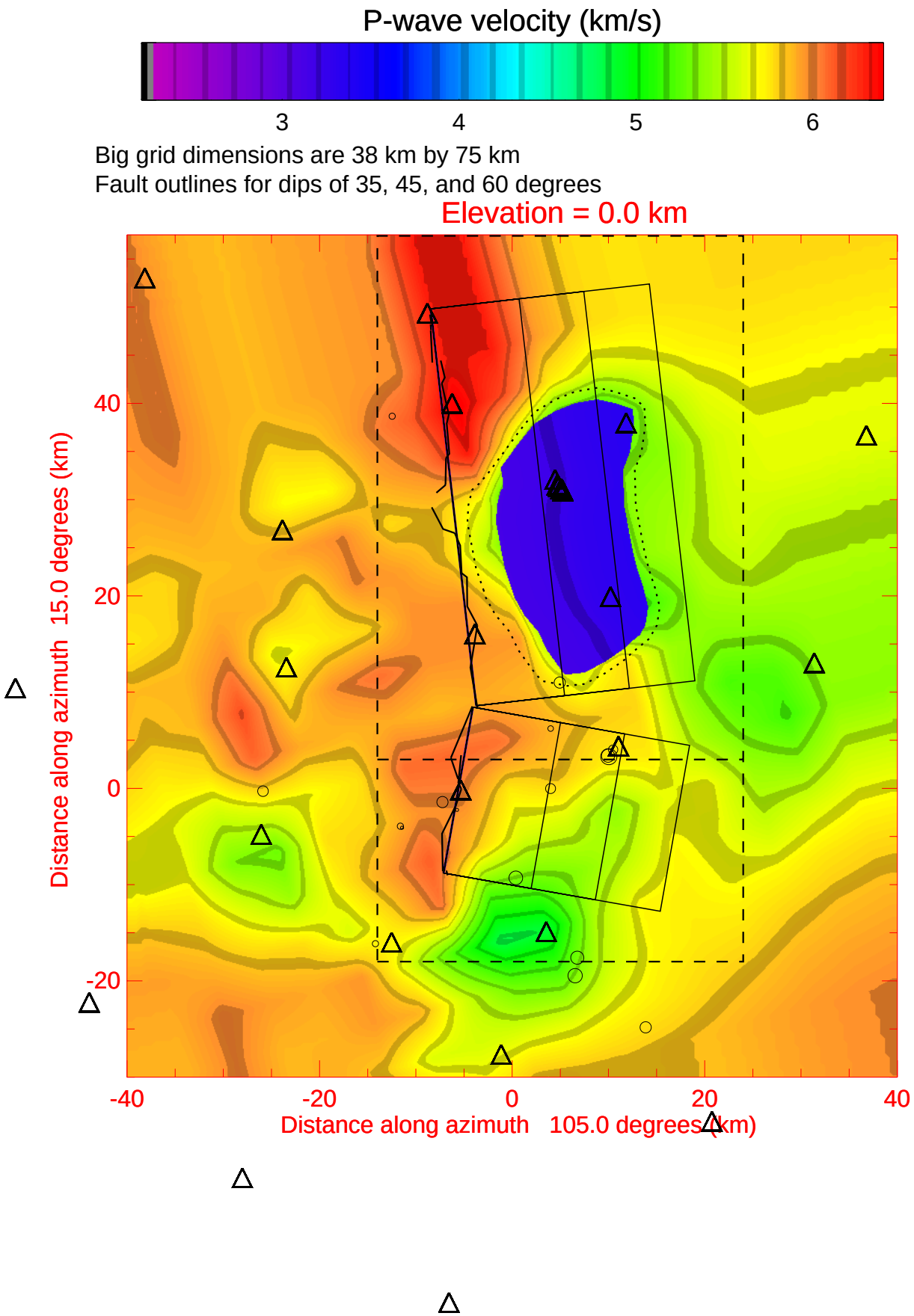
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
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6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = 0.0 km
Distance along azimuth 15.0 degrees (km)
40
20
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-20
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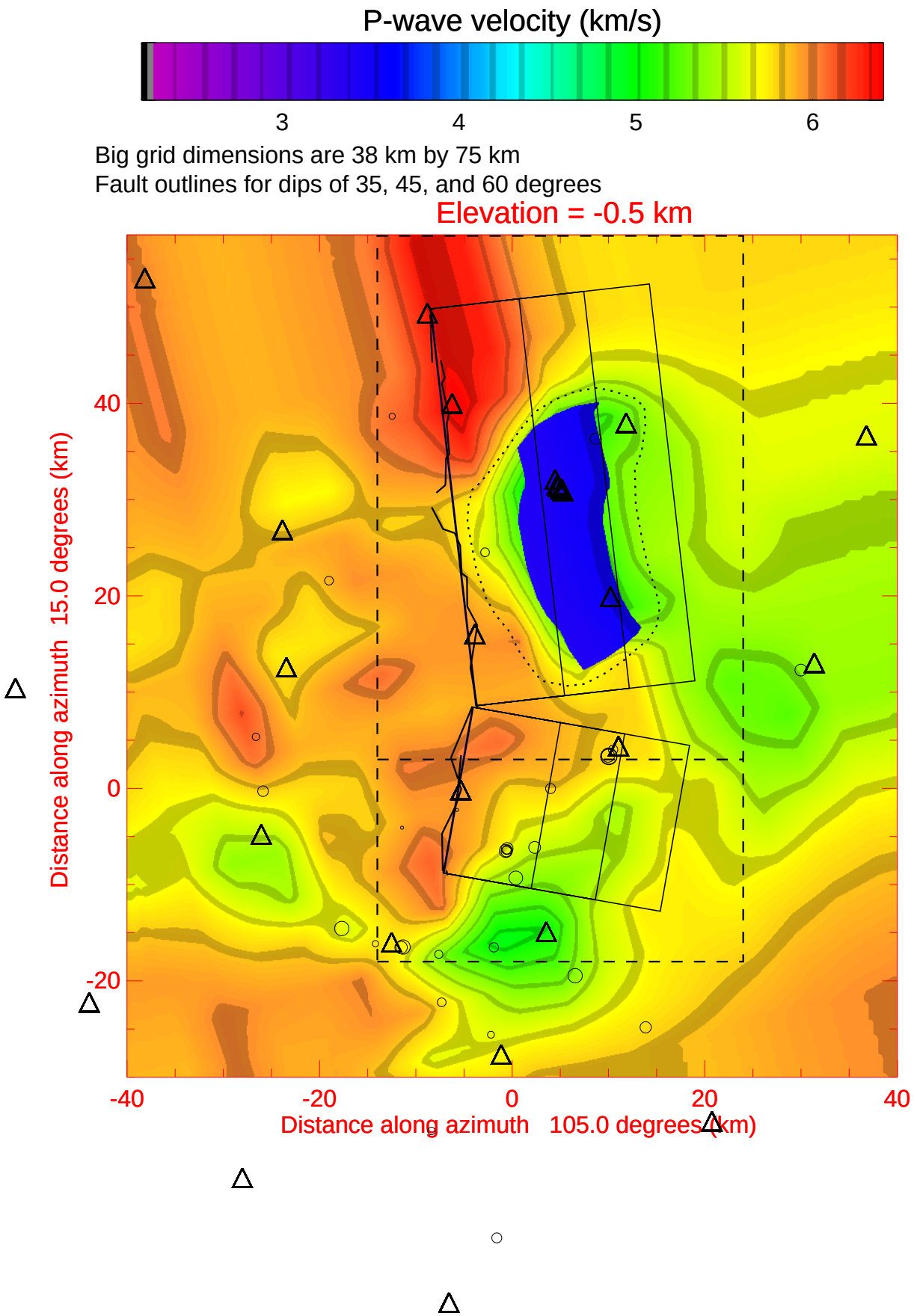
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
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6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -0.5 km
Distance along azimuth 15.0 degrees (km)
40
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-20
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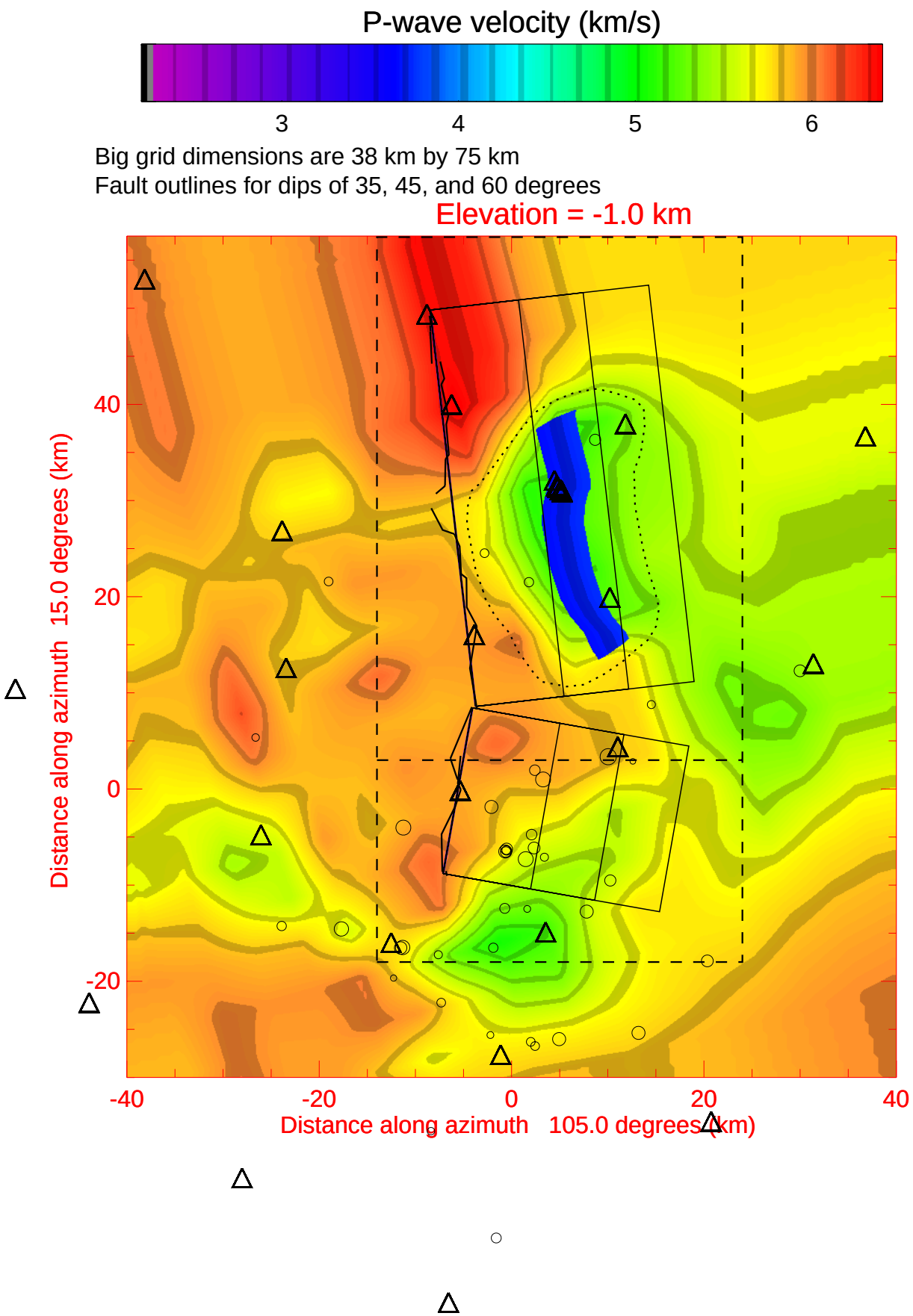
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
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6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -1.0 km
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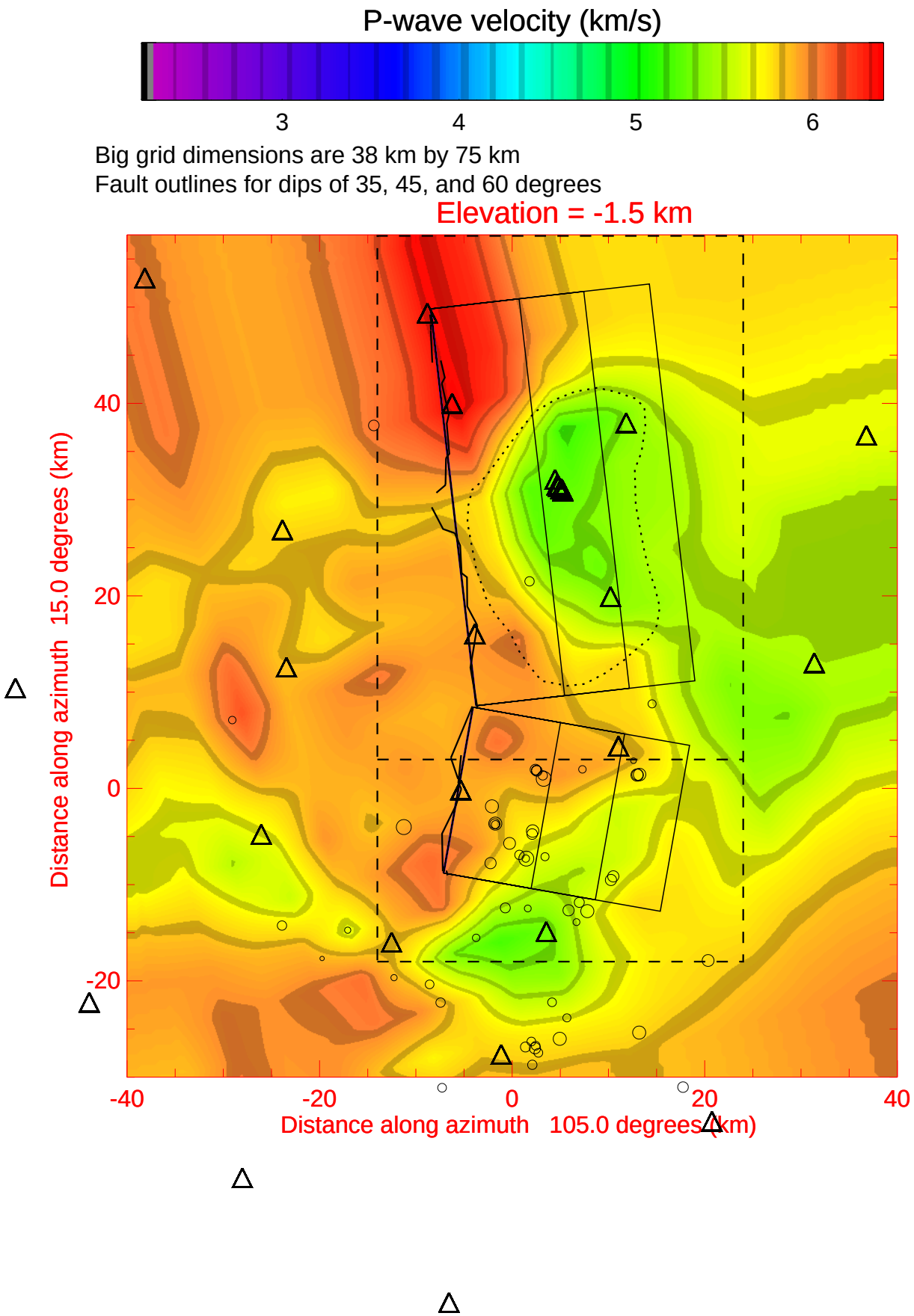
0
-20
Distance along azimuth 15.0 degrees (km)
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -1.5 km
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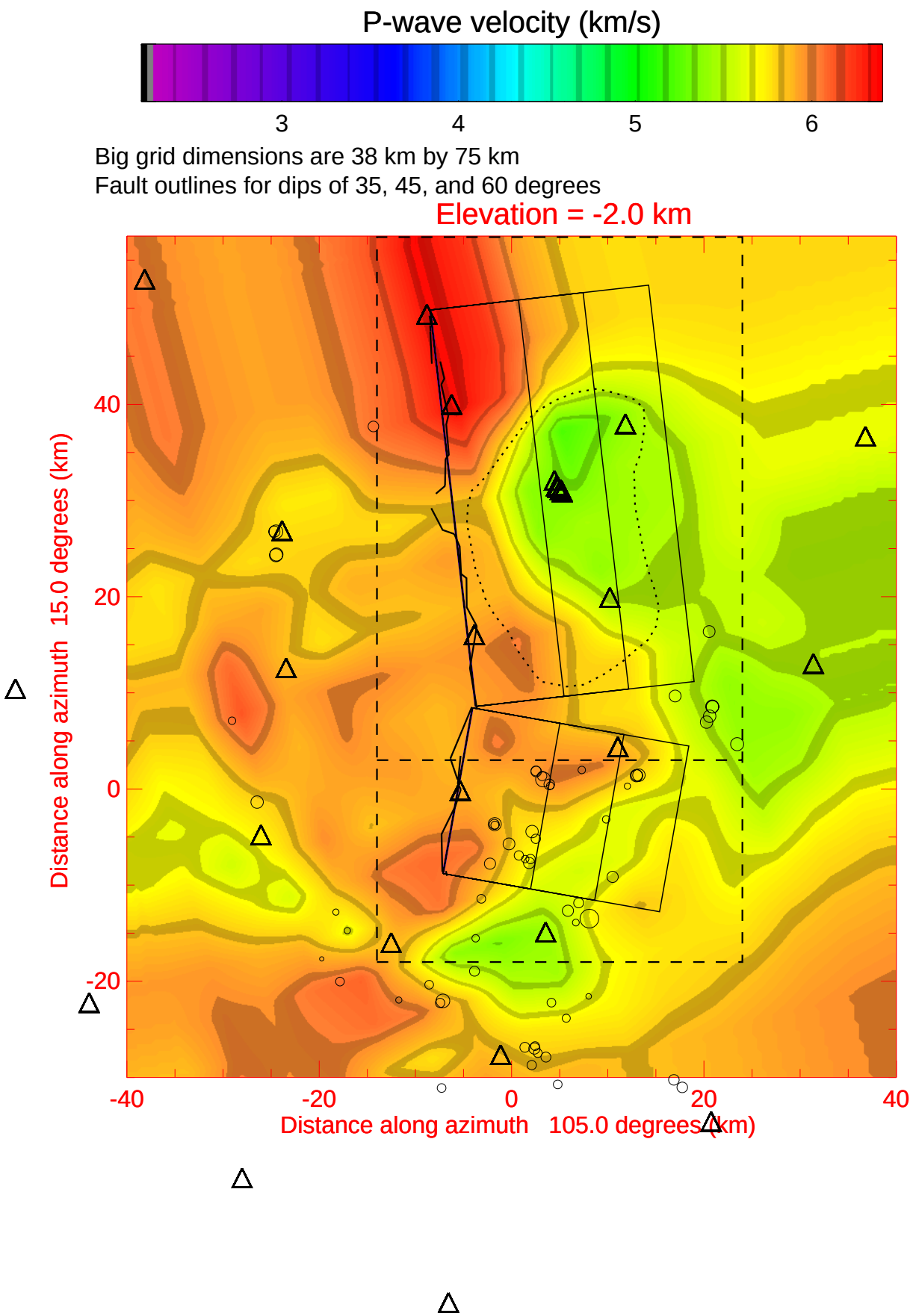
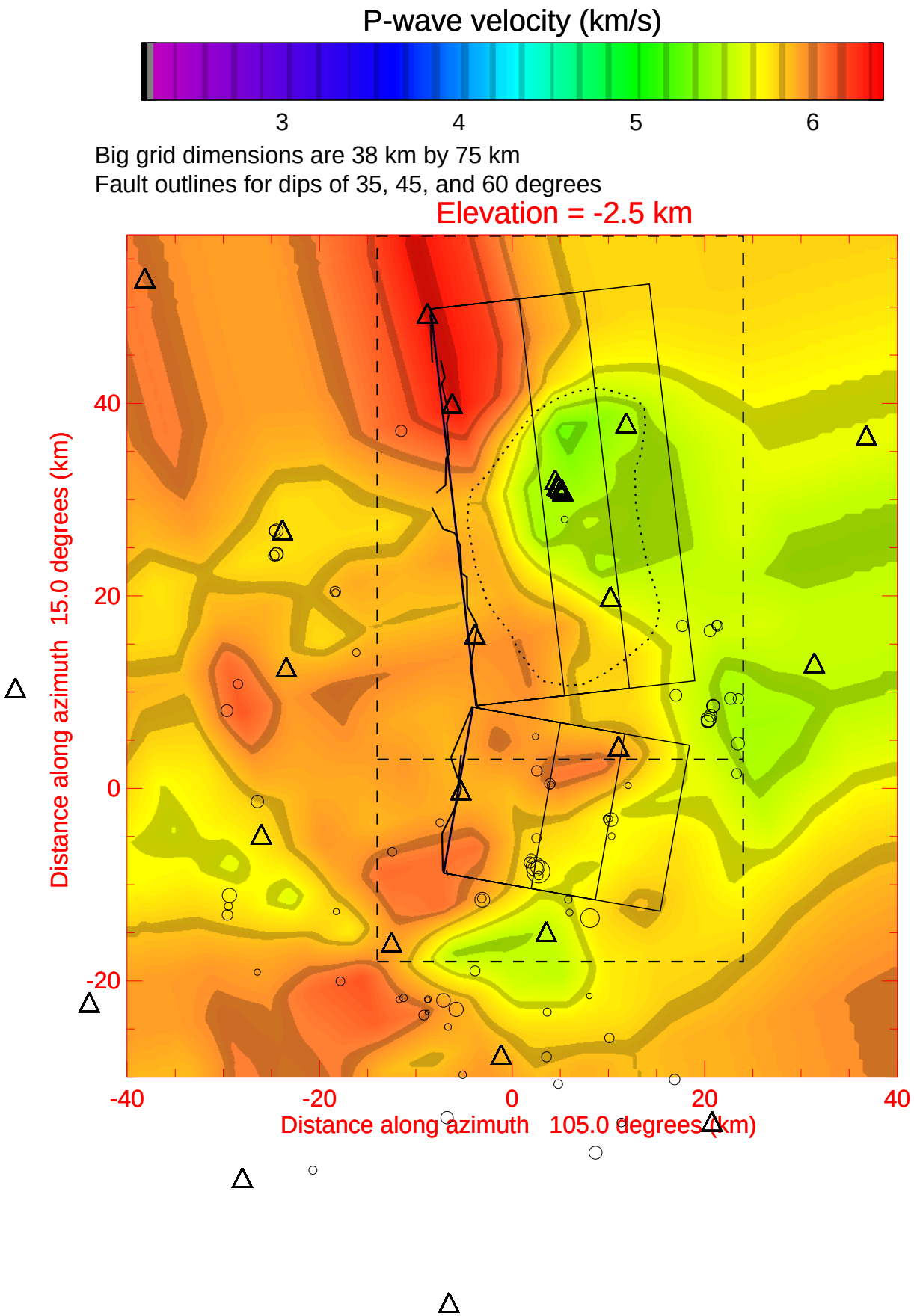
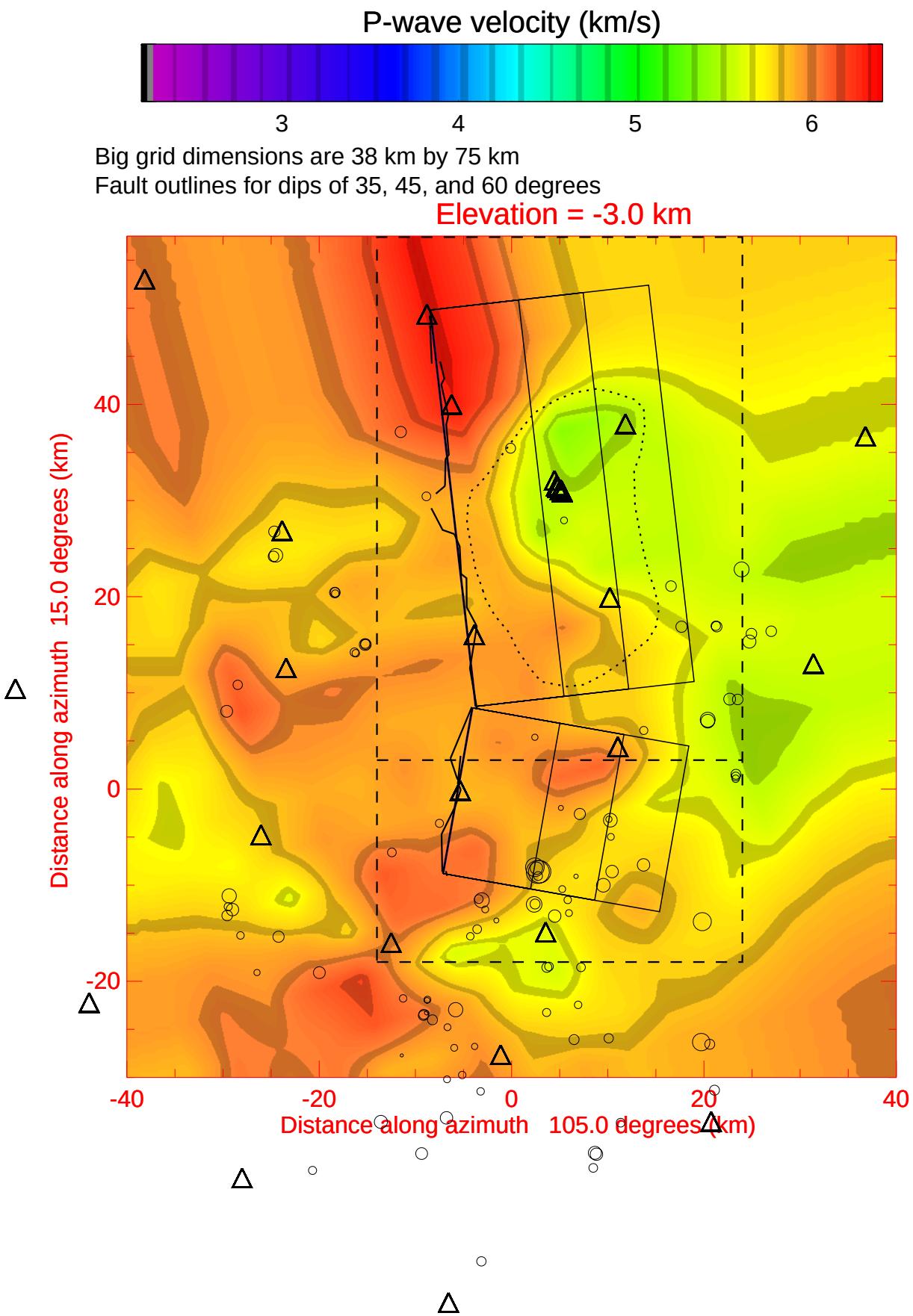
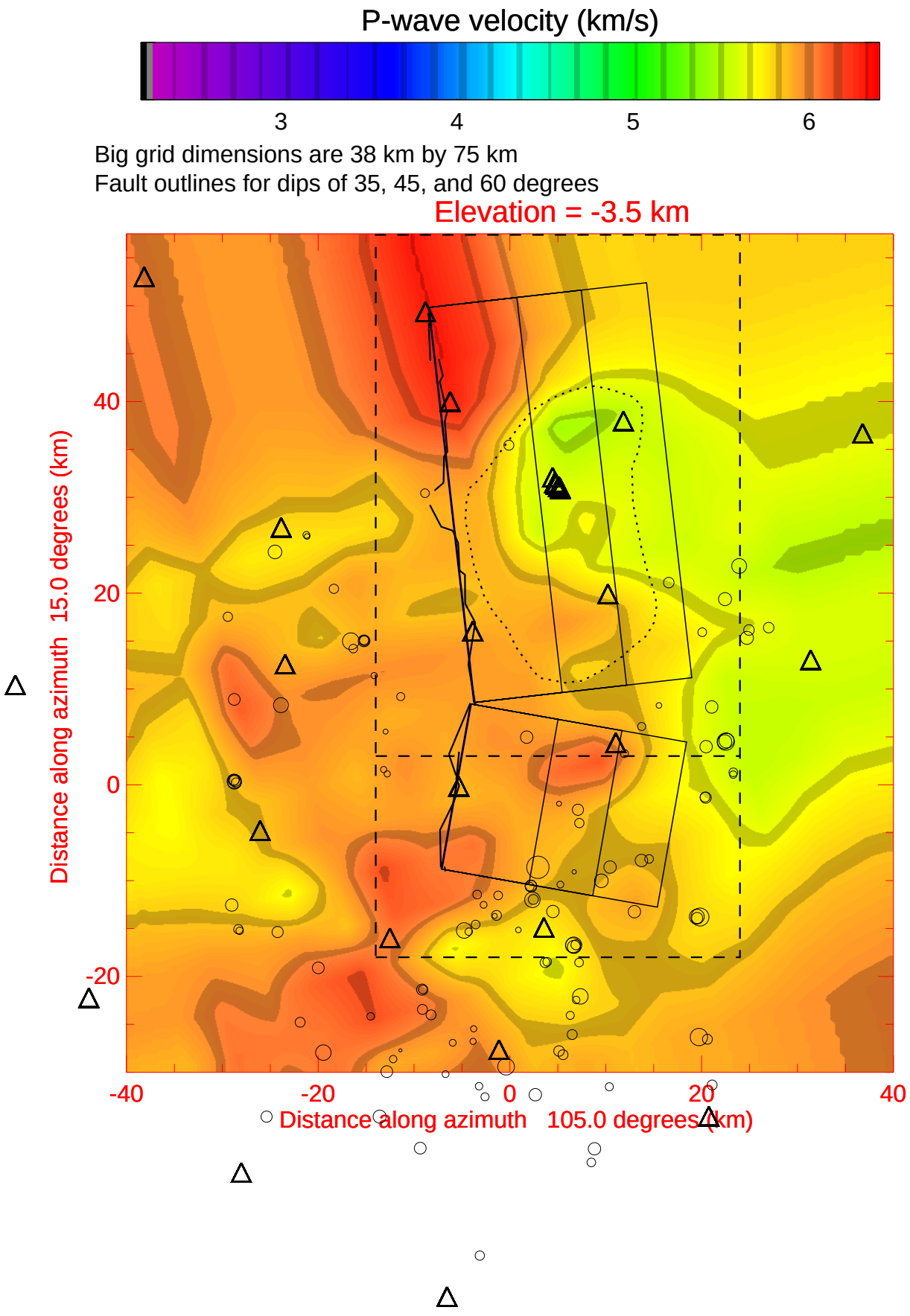
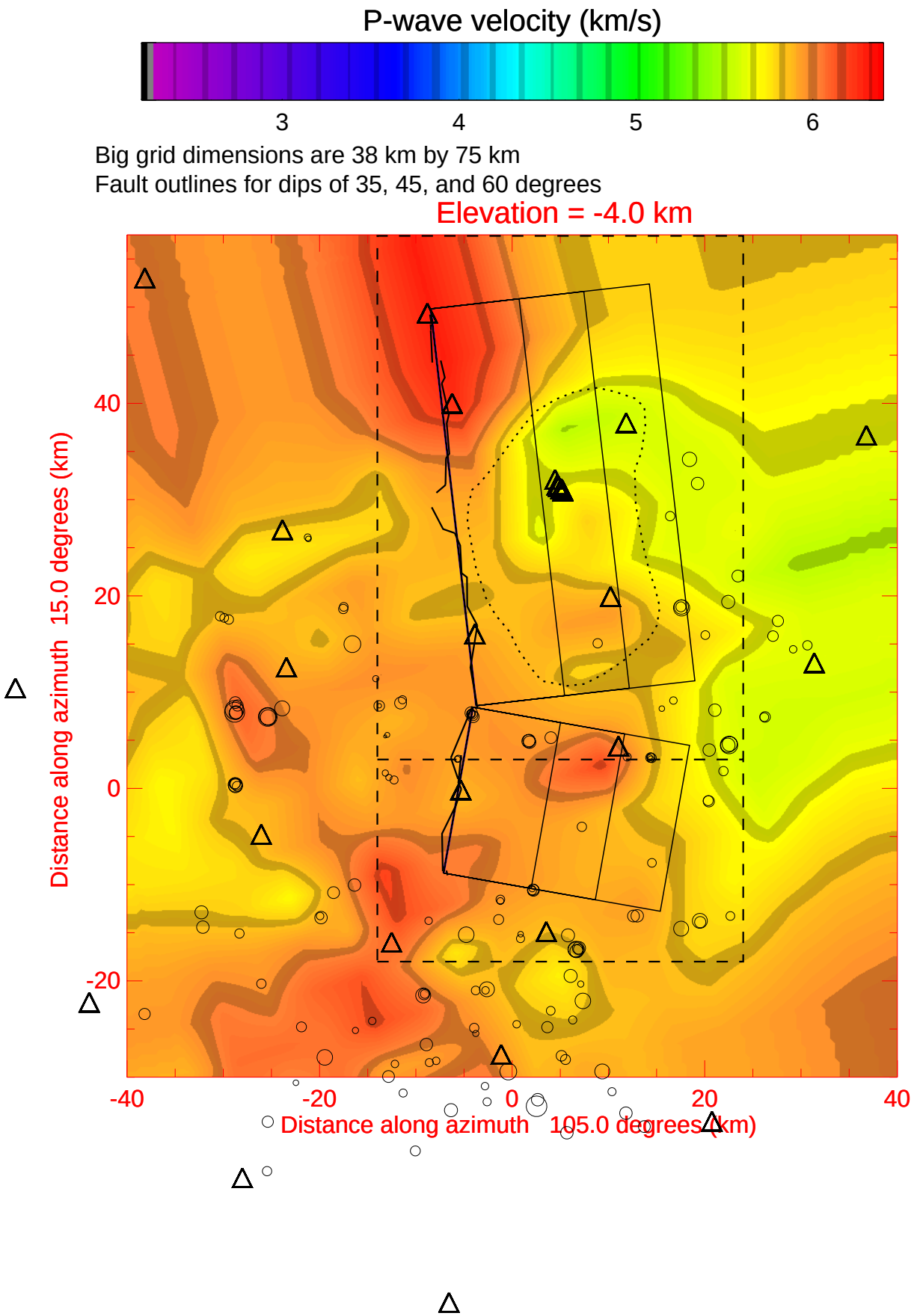
20
0
-20
Distance along azimuth 15.0 degrees (km)
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -2.0 km
40
20
0
-20
Distance along azimuth 15.0 degrees (km)
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -2.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -3.0 km
40
20
0
-20
Distance along azimuth 15.0 degrees (km)
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -3.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -4.0 km
Distance along azimuth 15.0 degrees (km)
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20
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-20
-40
-20
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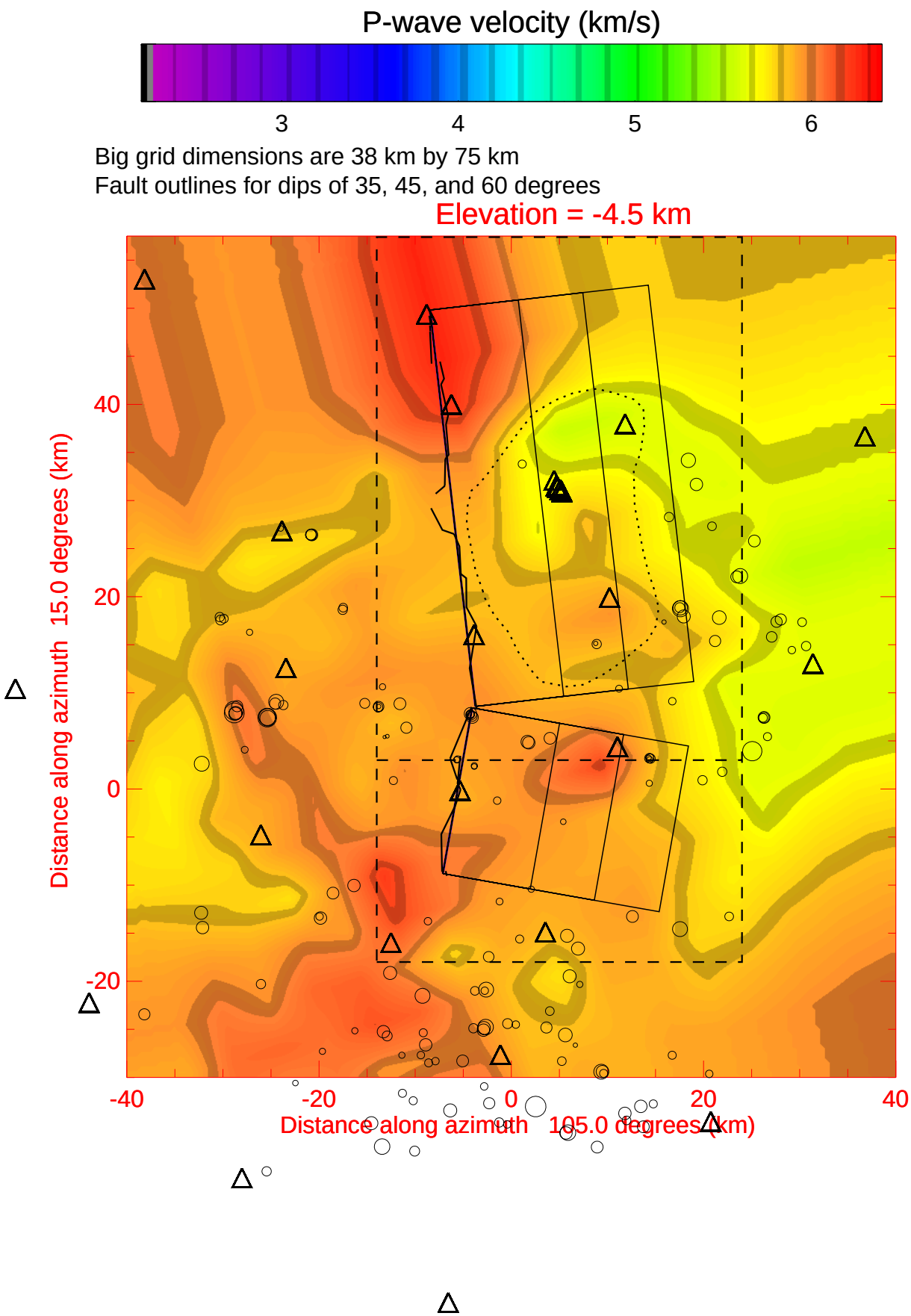
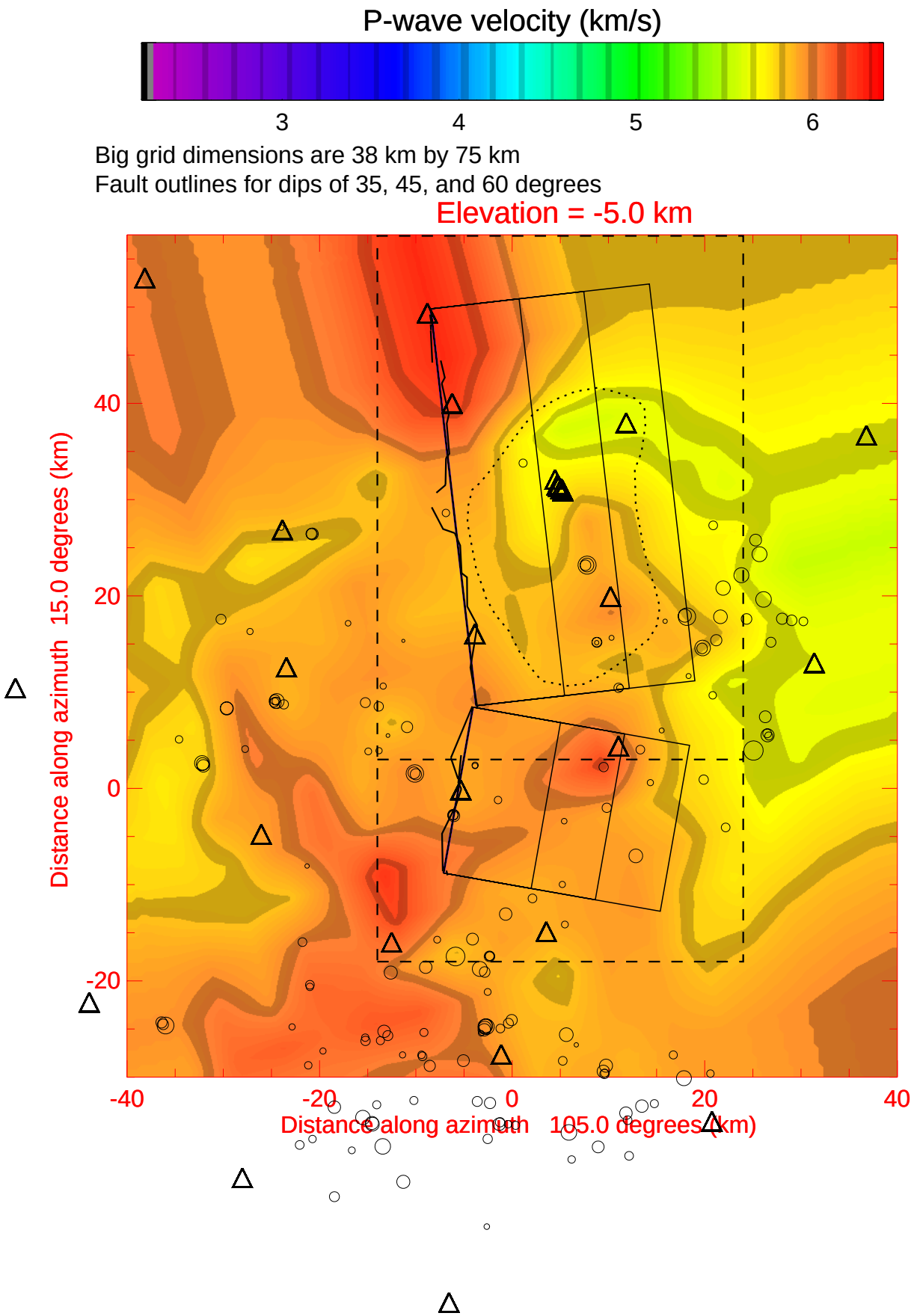
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -4.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -5.0 km
Distance along azimuth 15.0 degrees (km)
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20
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-40
-20
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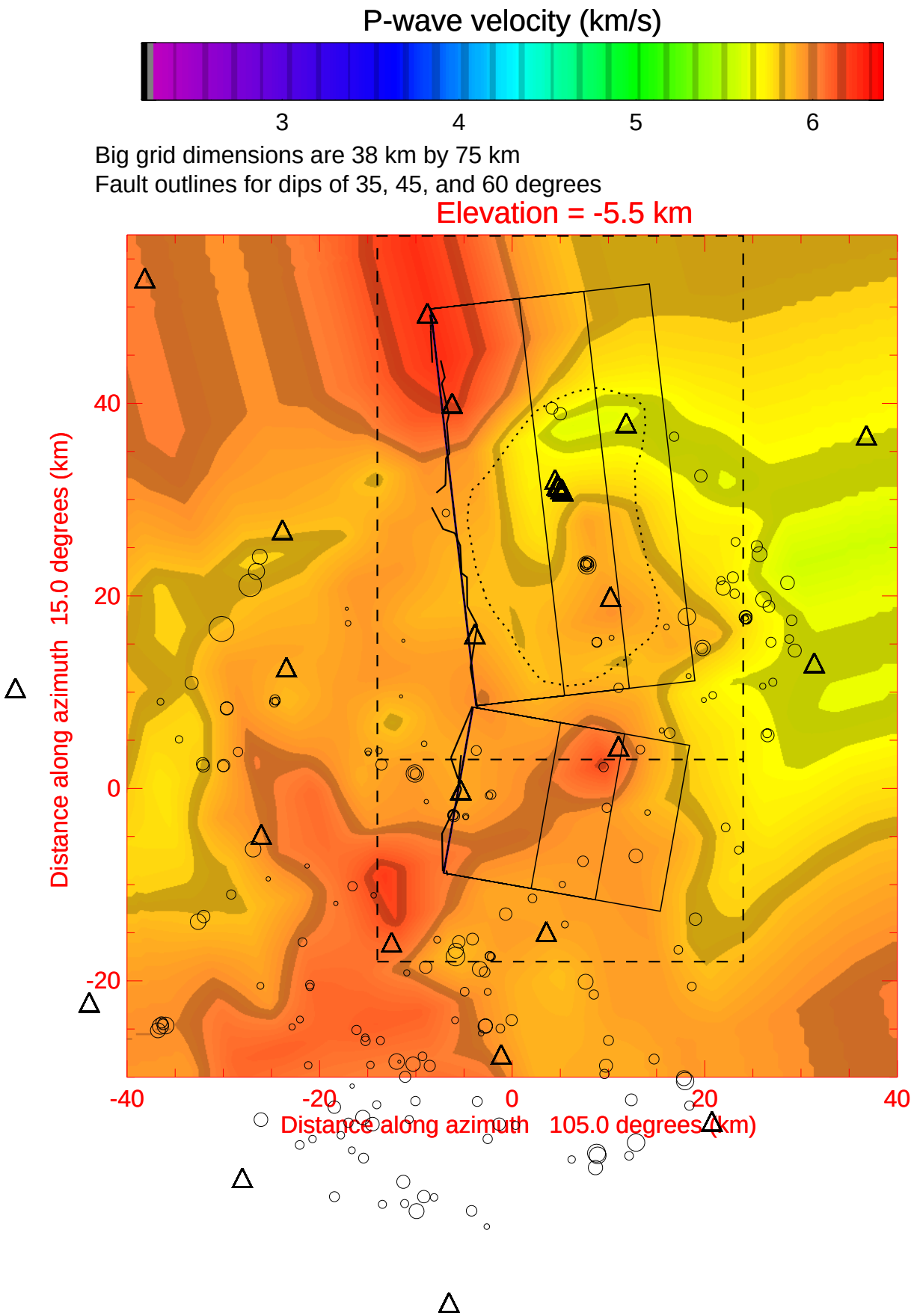
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
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4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -5.5 km
Distance along azimuth 15.0 degrees (km)
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-20
-40
-20
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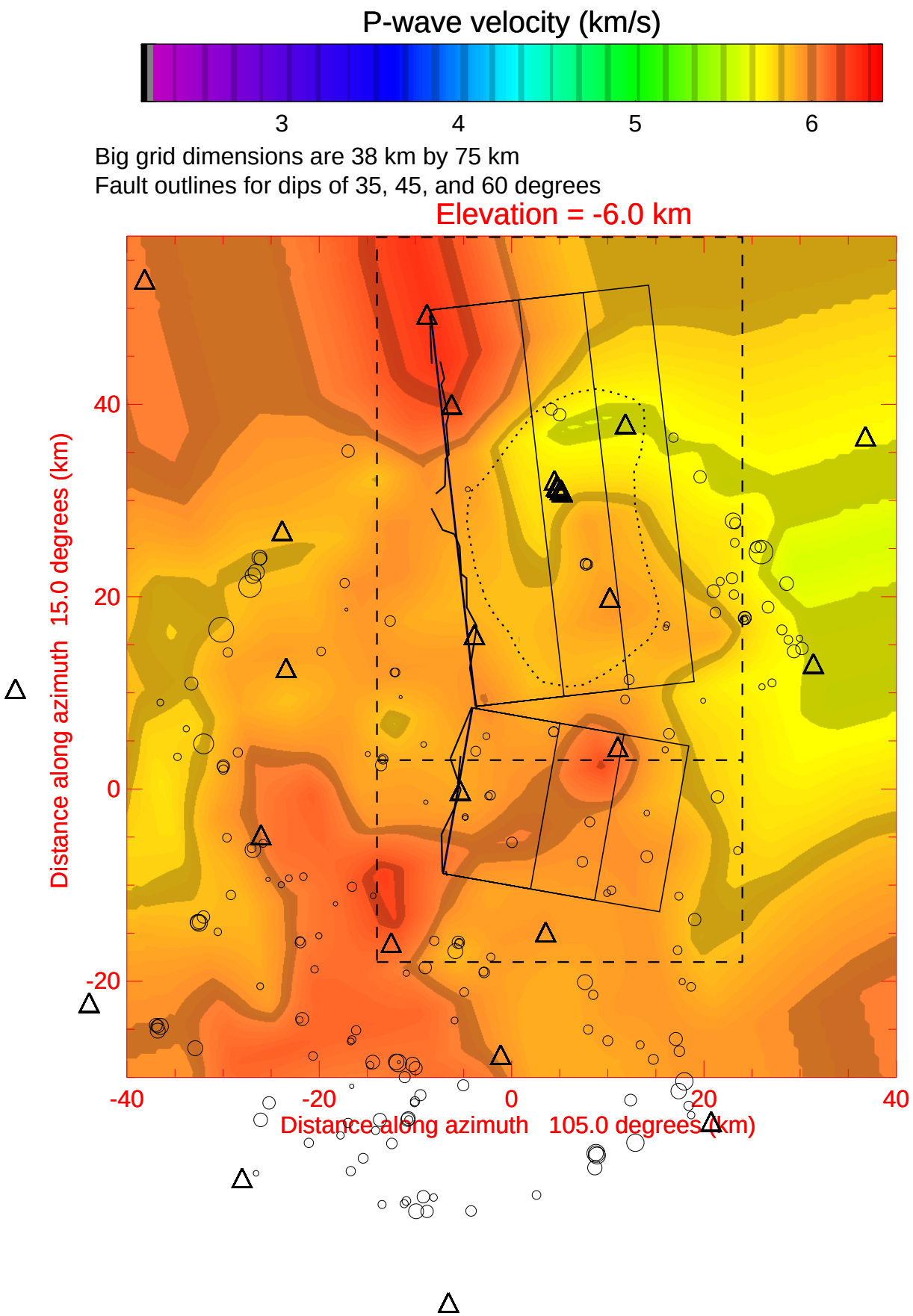
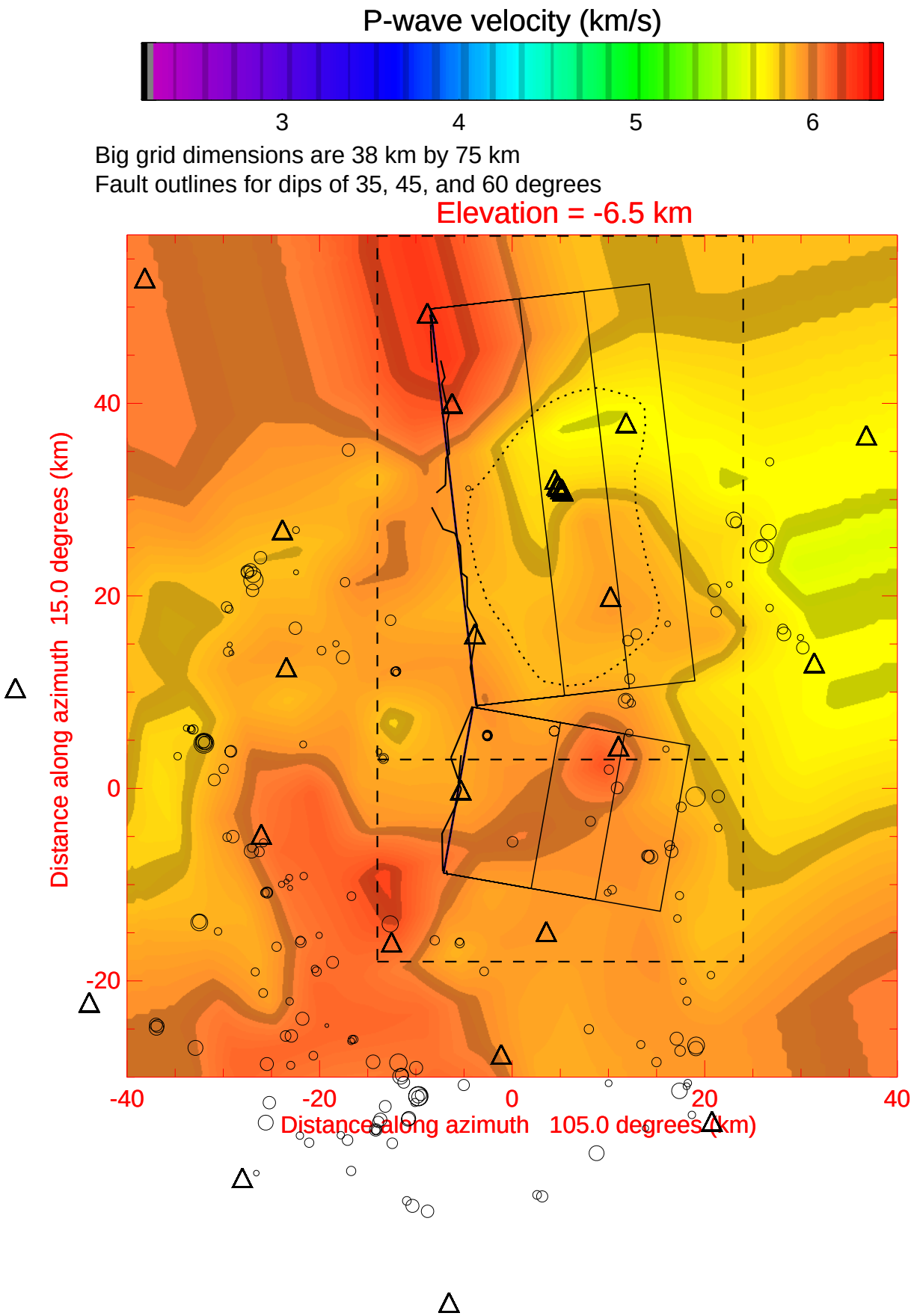
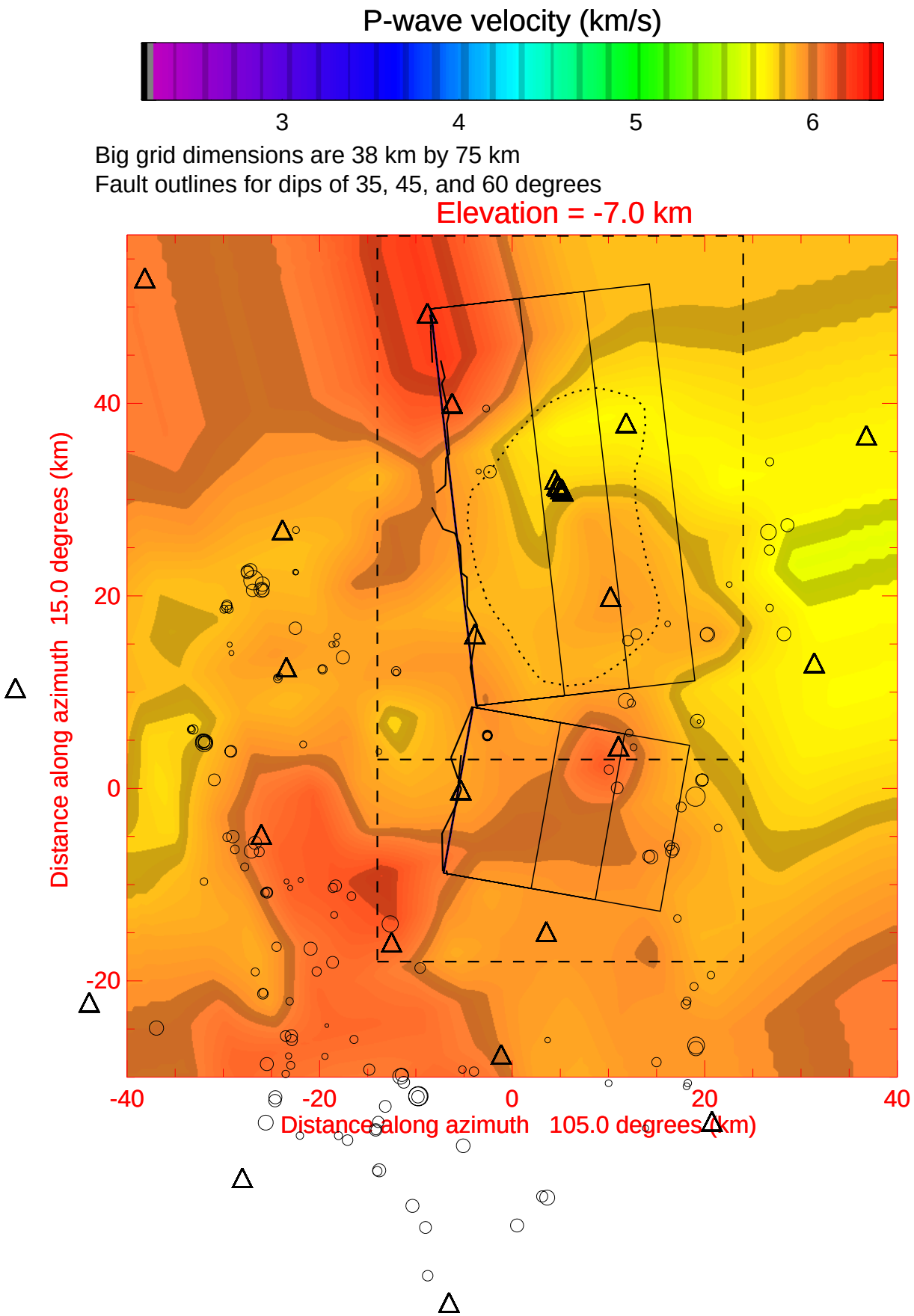
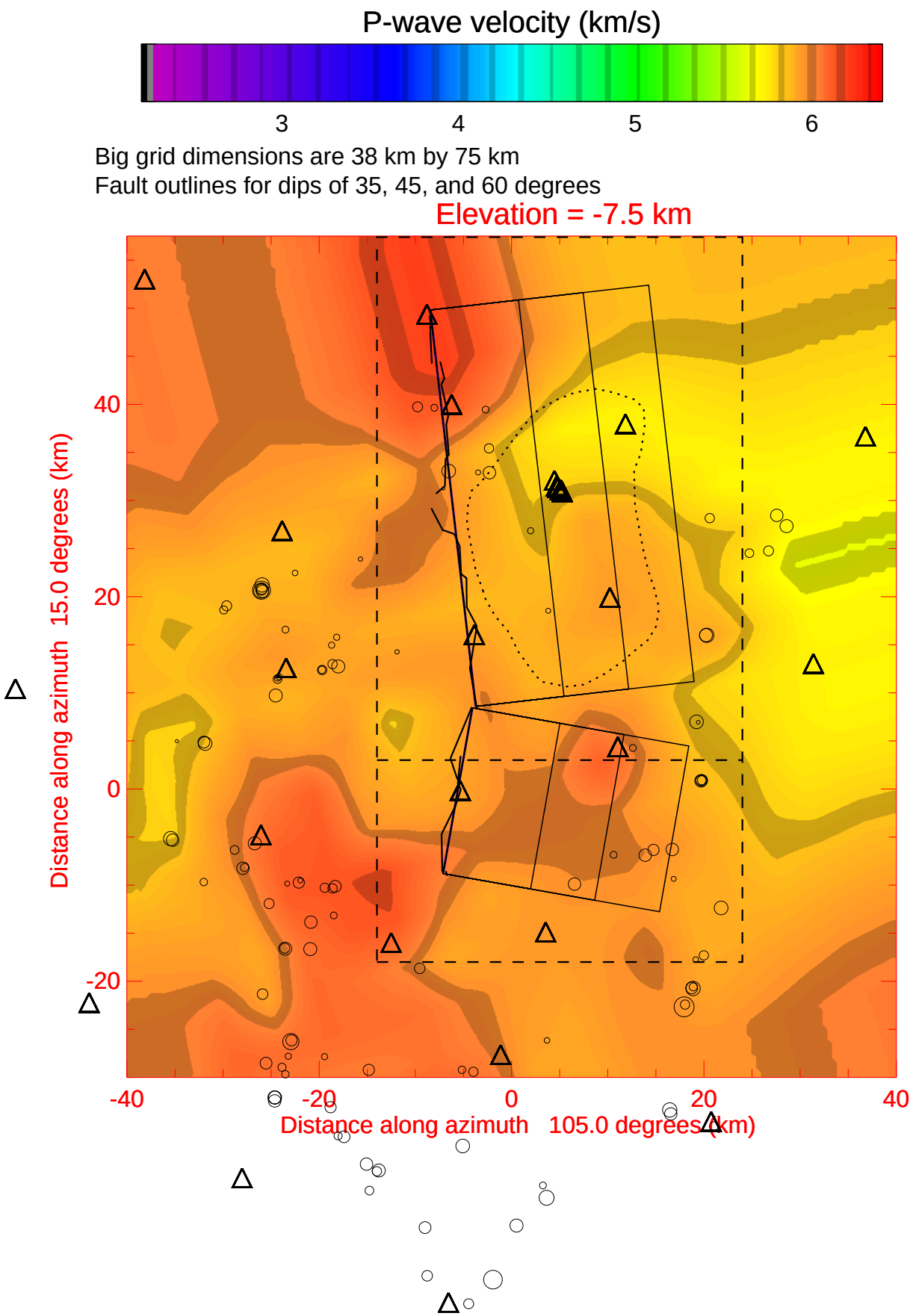
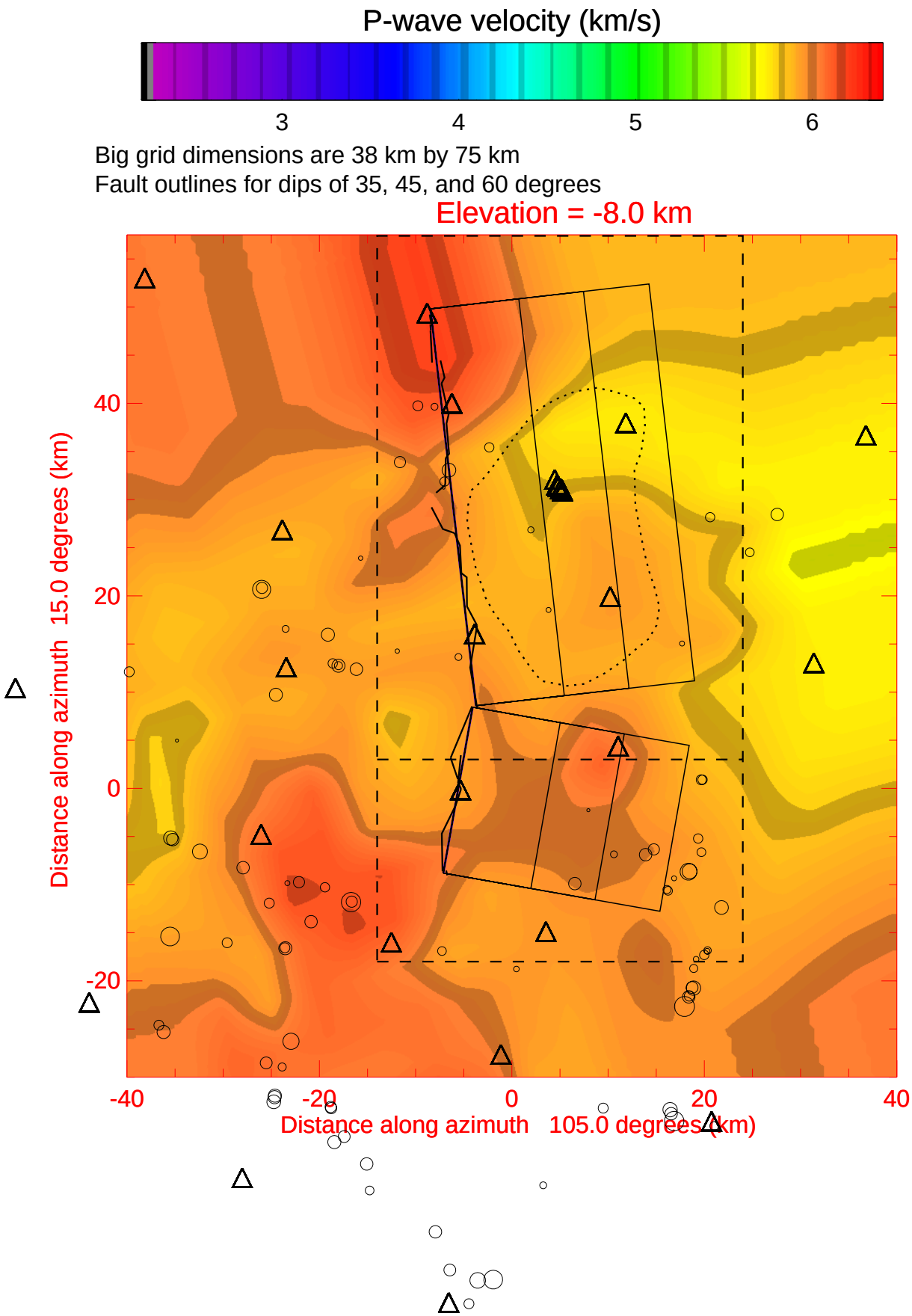
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -6.0 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -6.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -7.0 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -7.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
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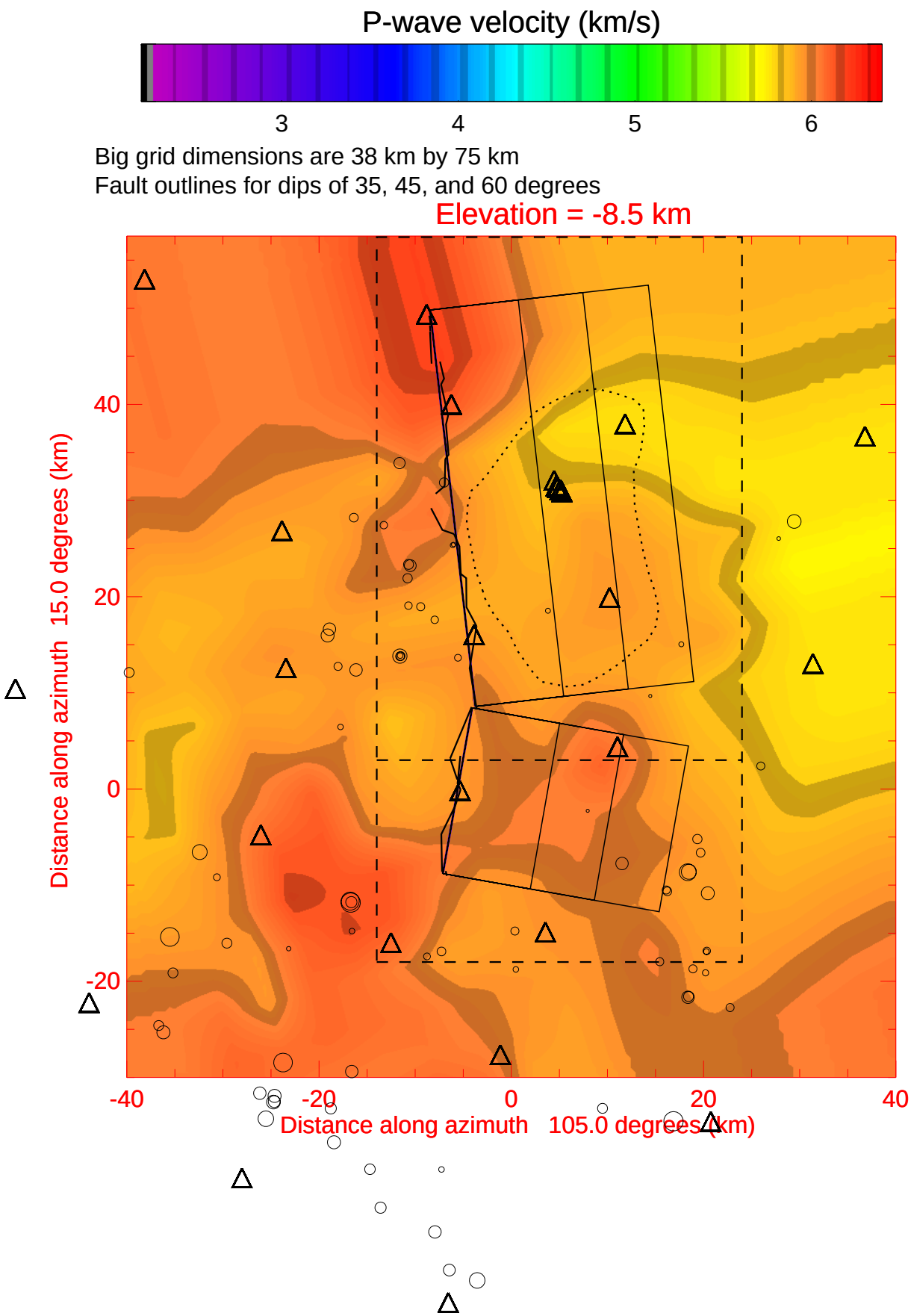
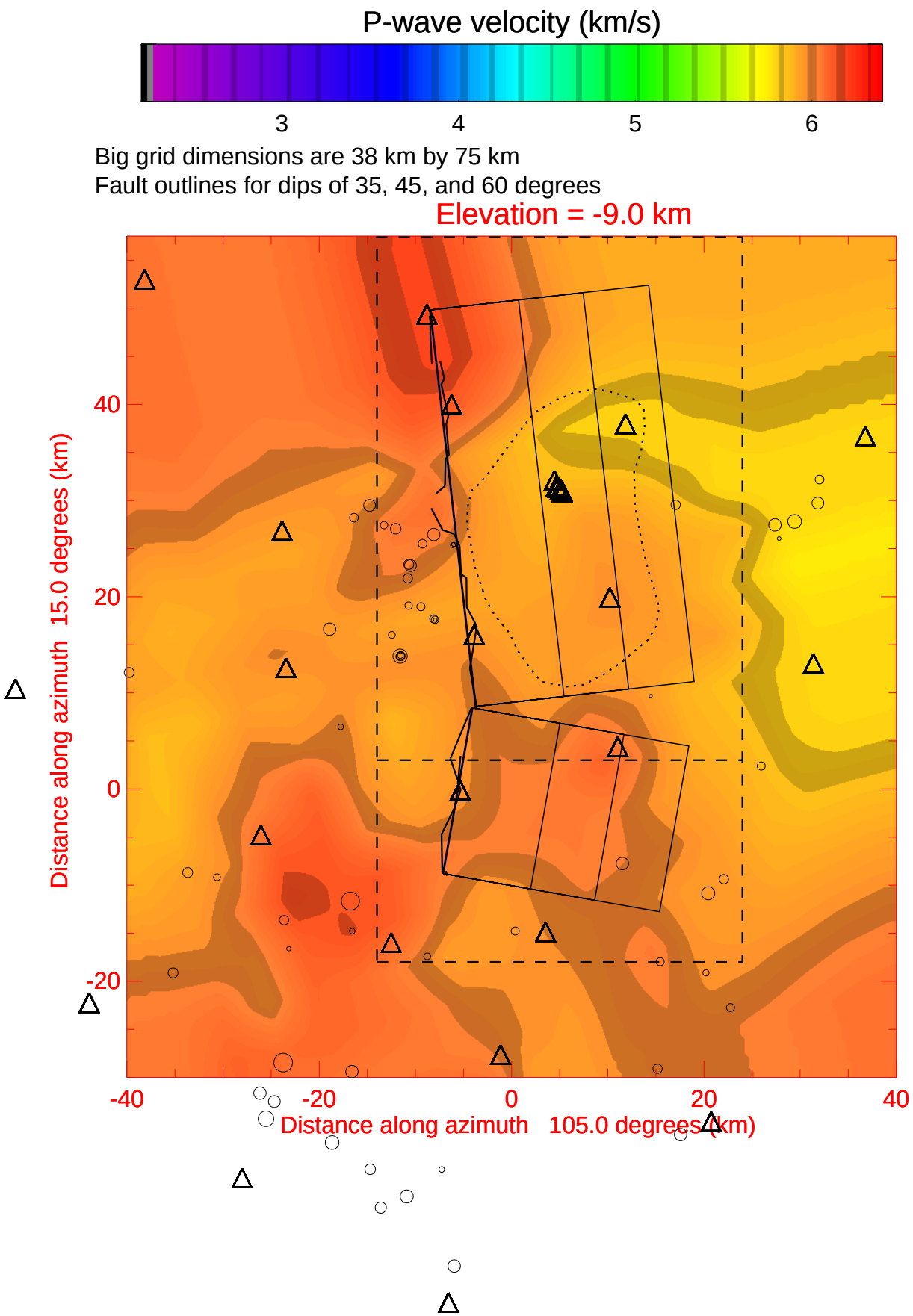
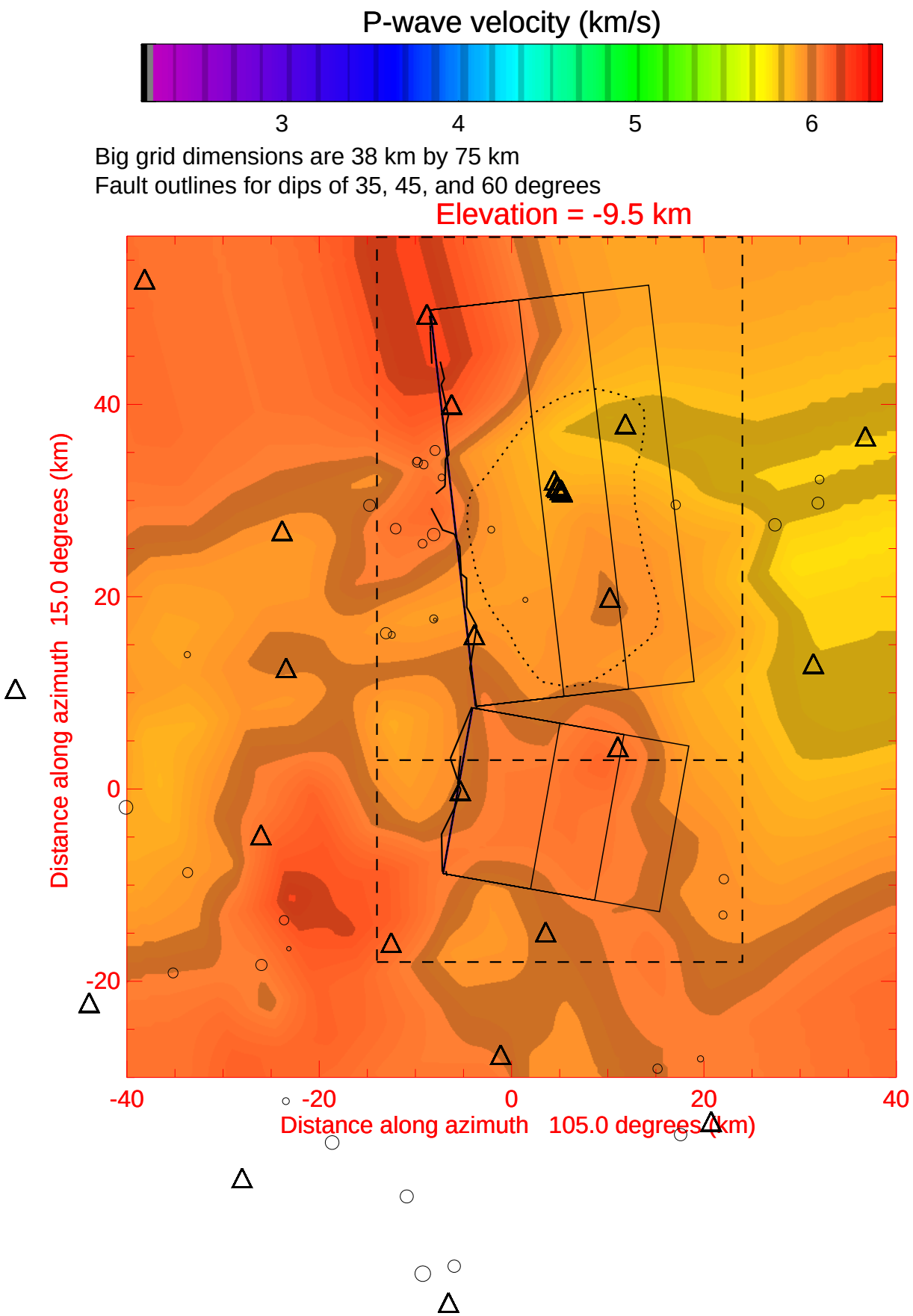
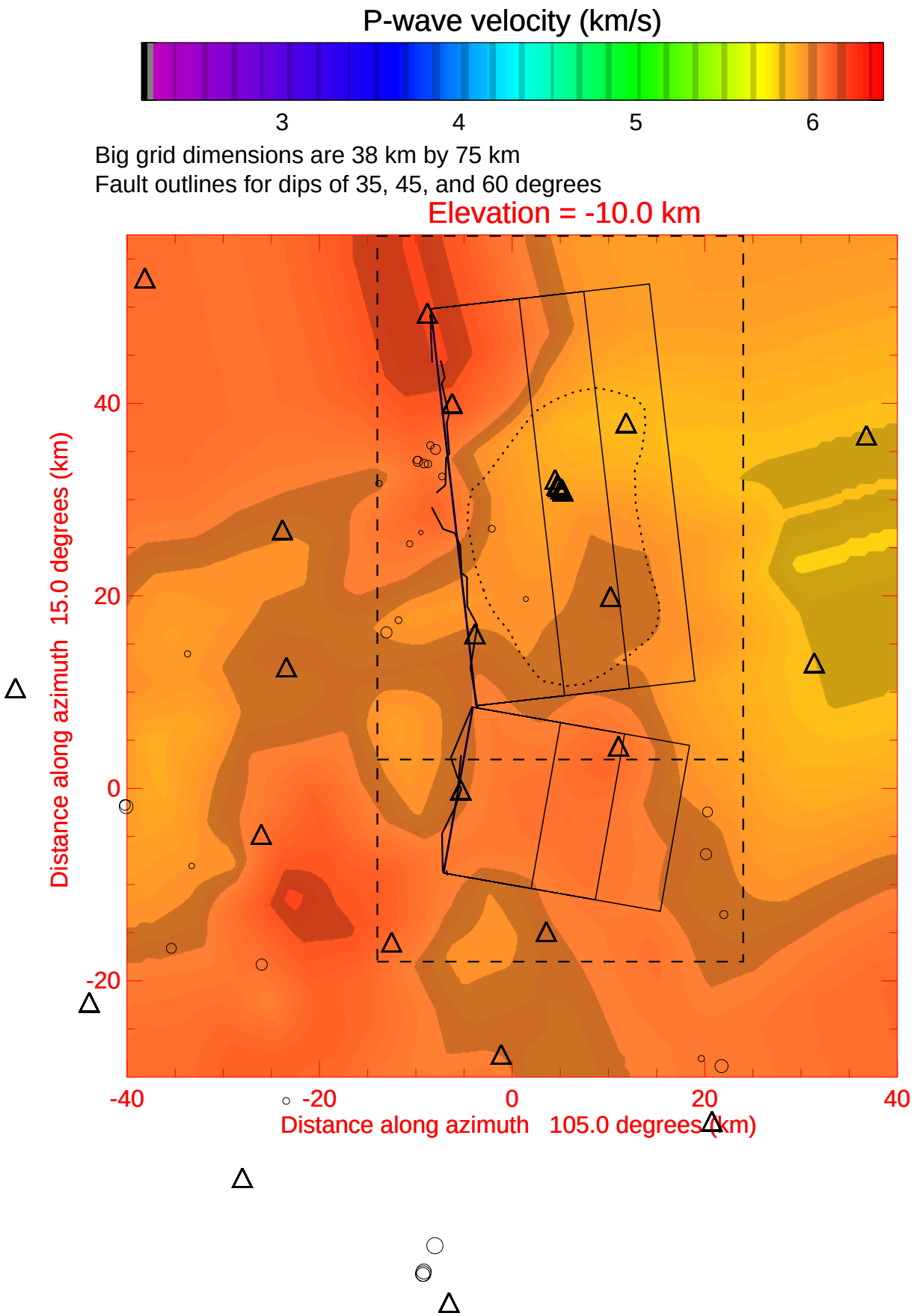
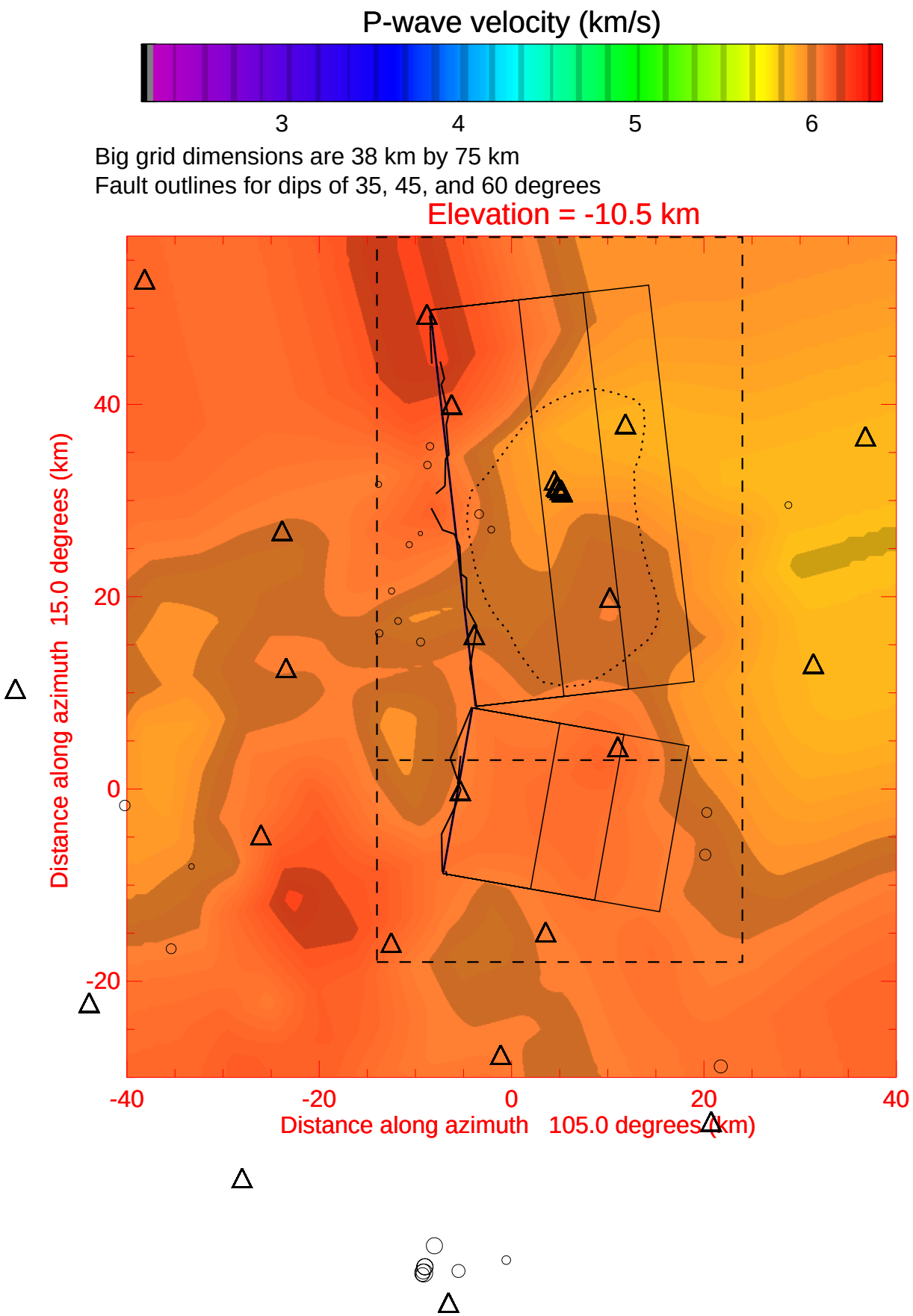
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -8.0 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)

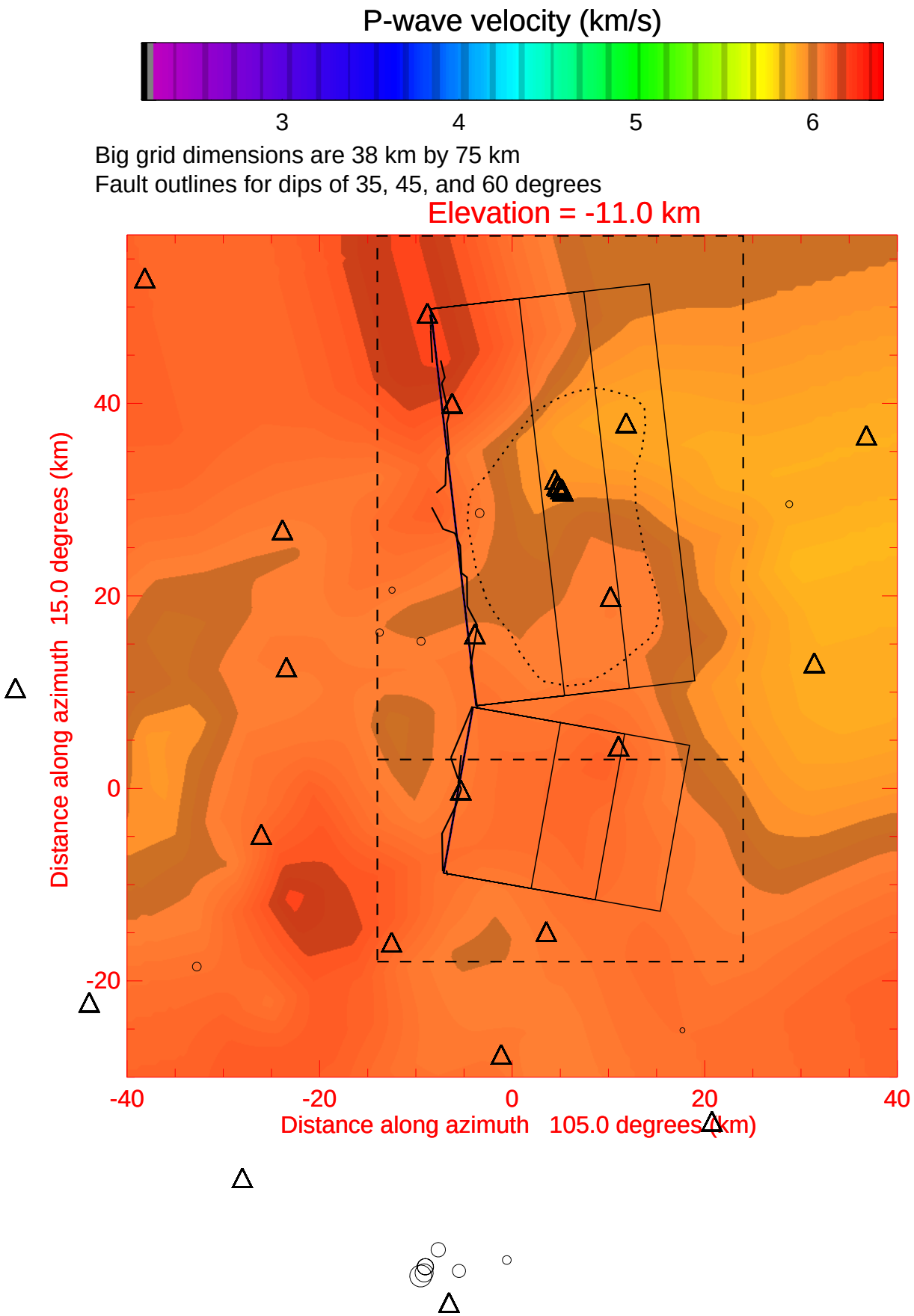

P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -8.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)

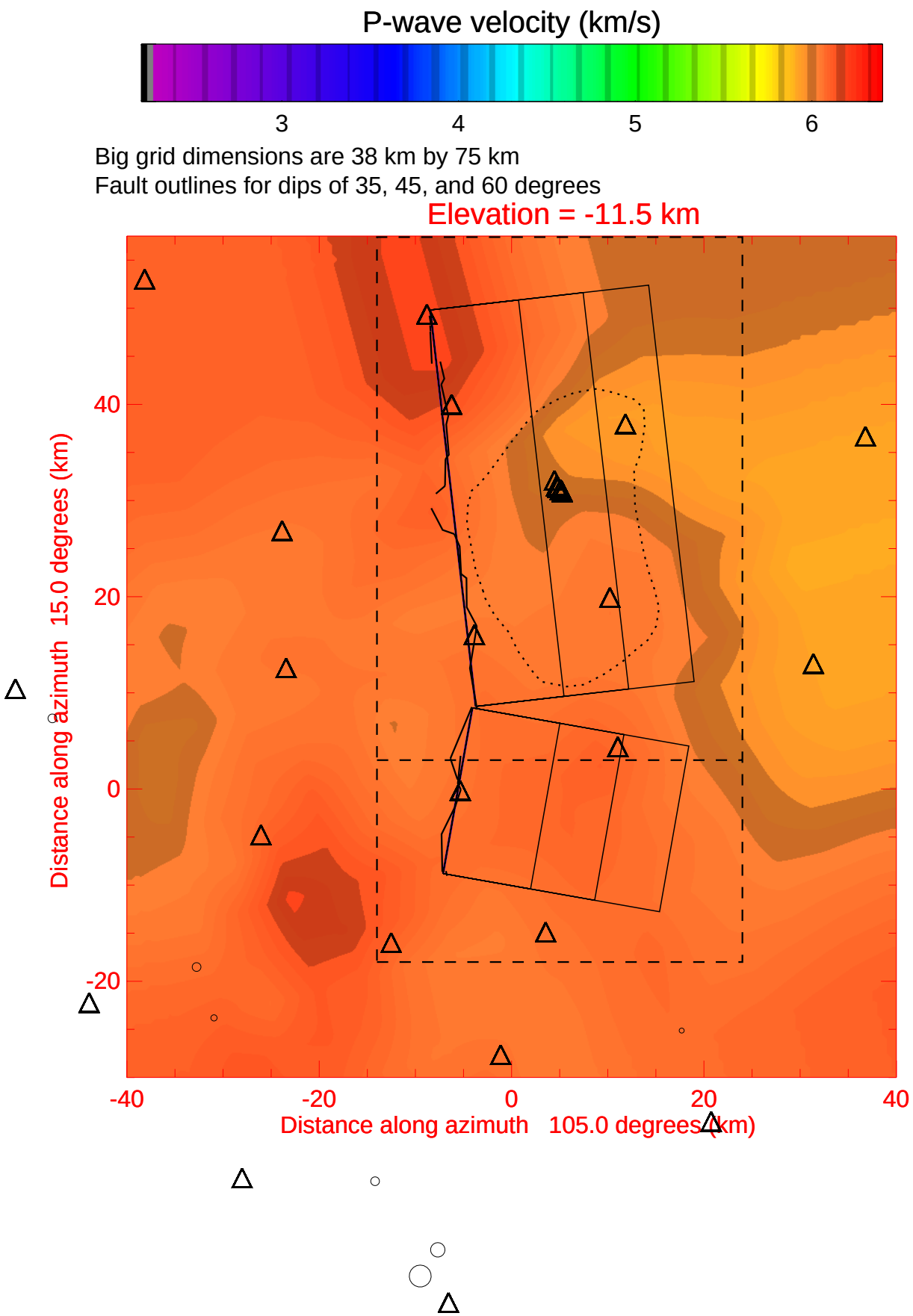

P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -9.0 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)

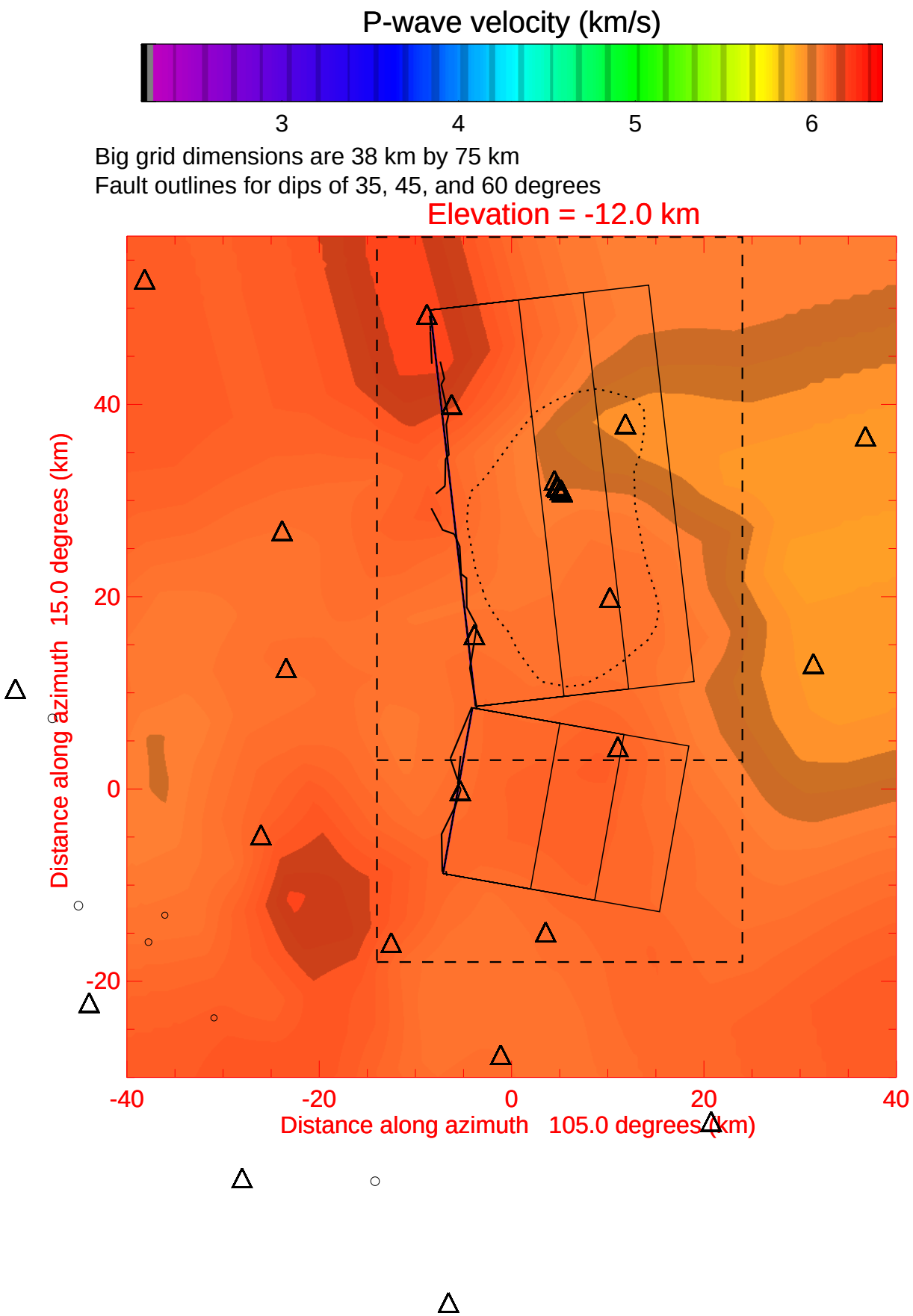

P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -9.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -10.0 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -10.5 km
40
20
0
-20
Distance along azimuth 15.0 degrees (km)
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -11.0 km
40
20
0
-20
Distance along azimuth 15.0 degrees (km)
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -11.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -12.0 km
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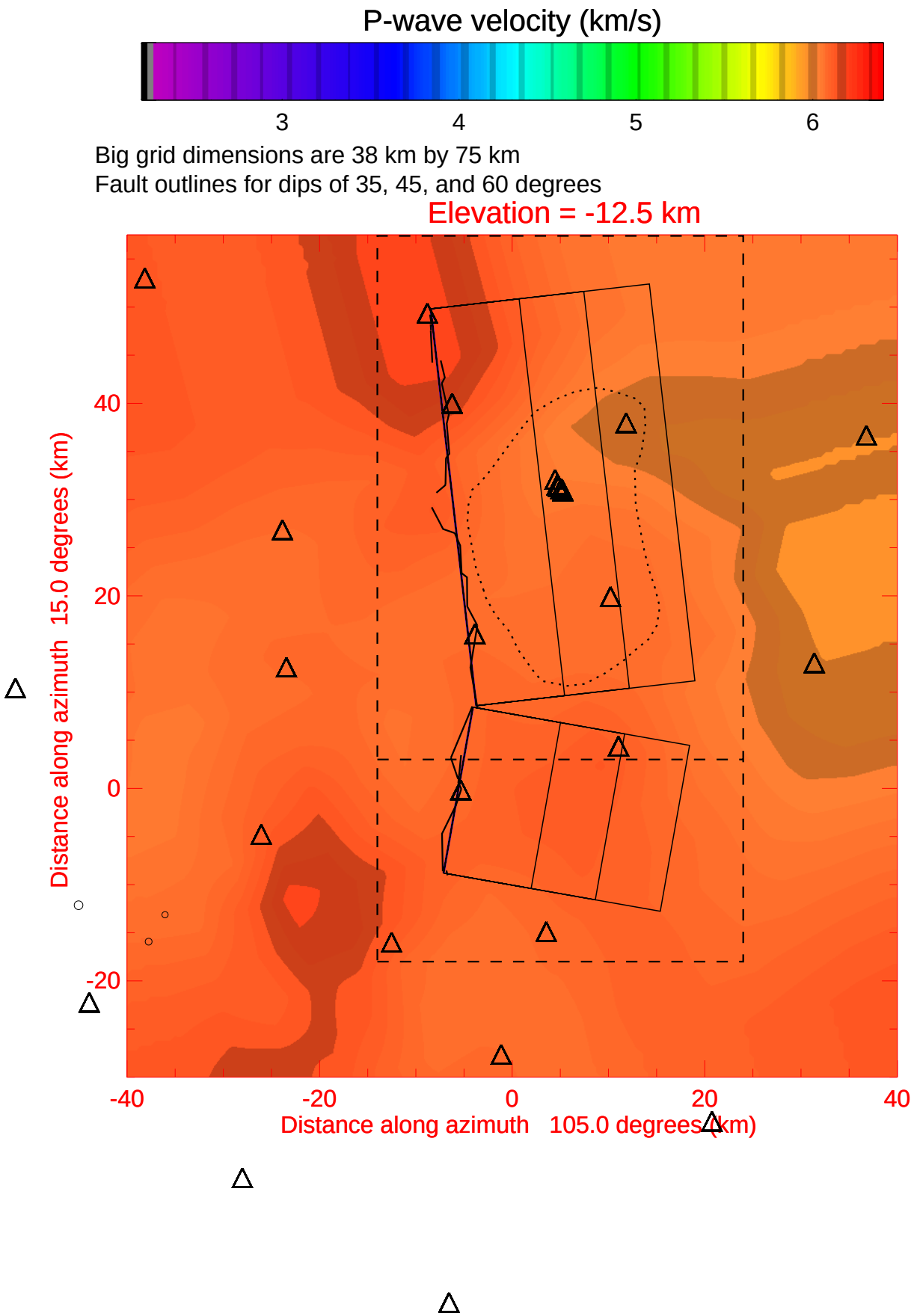
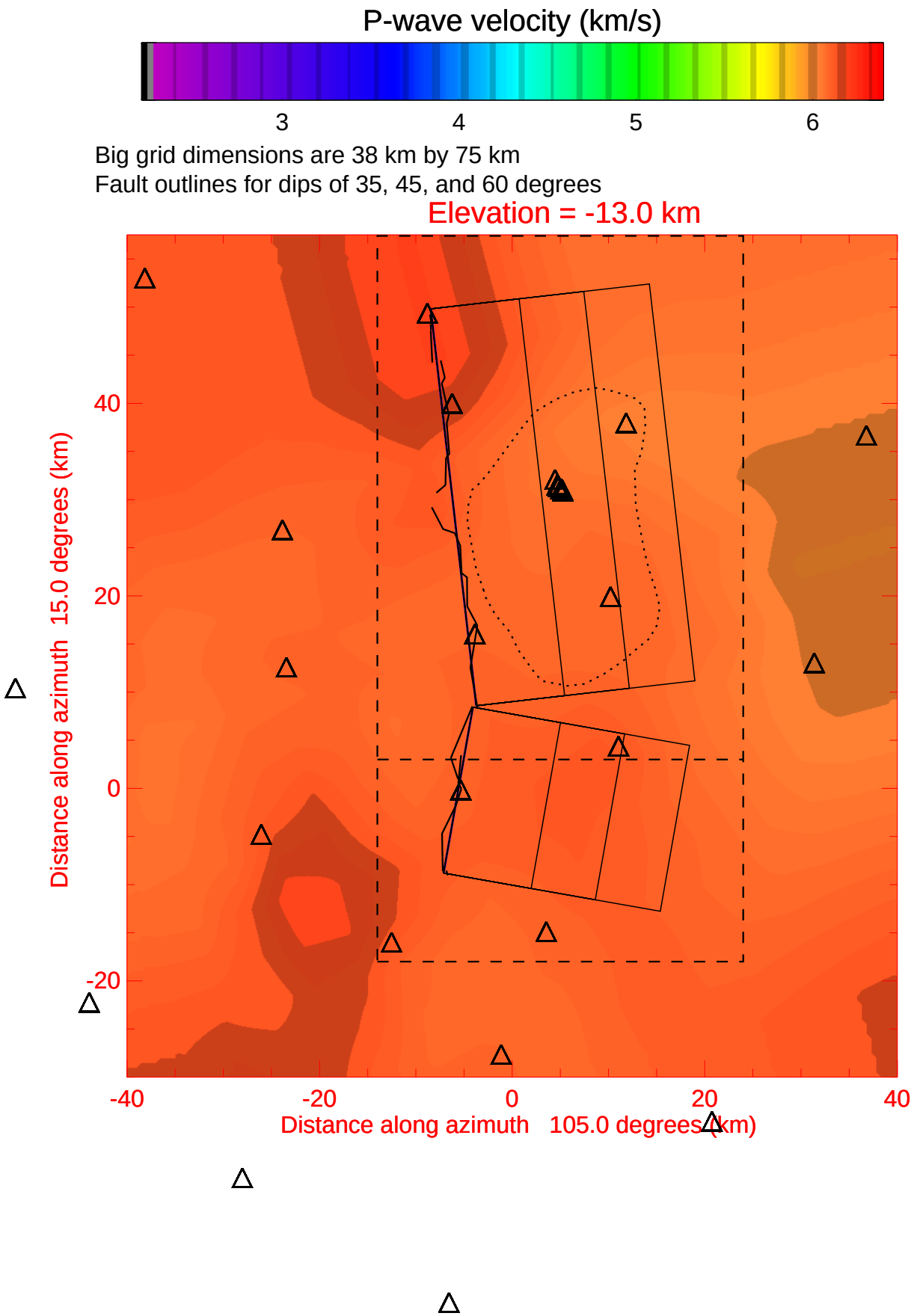
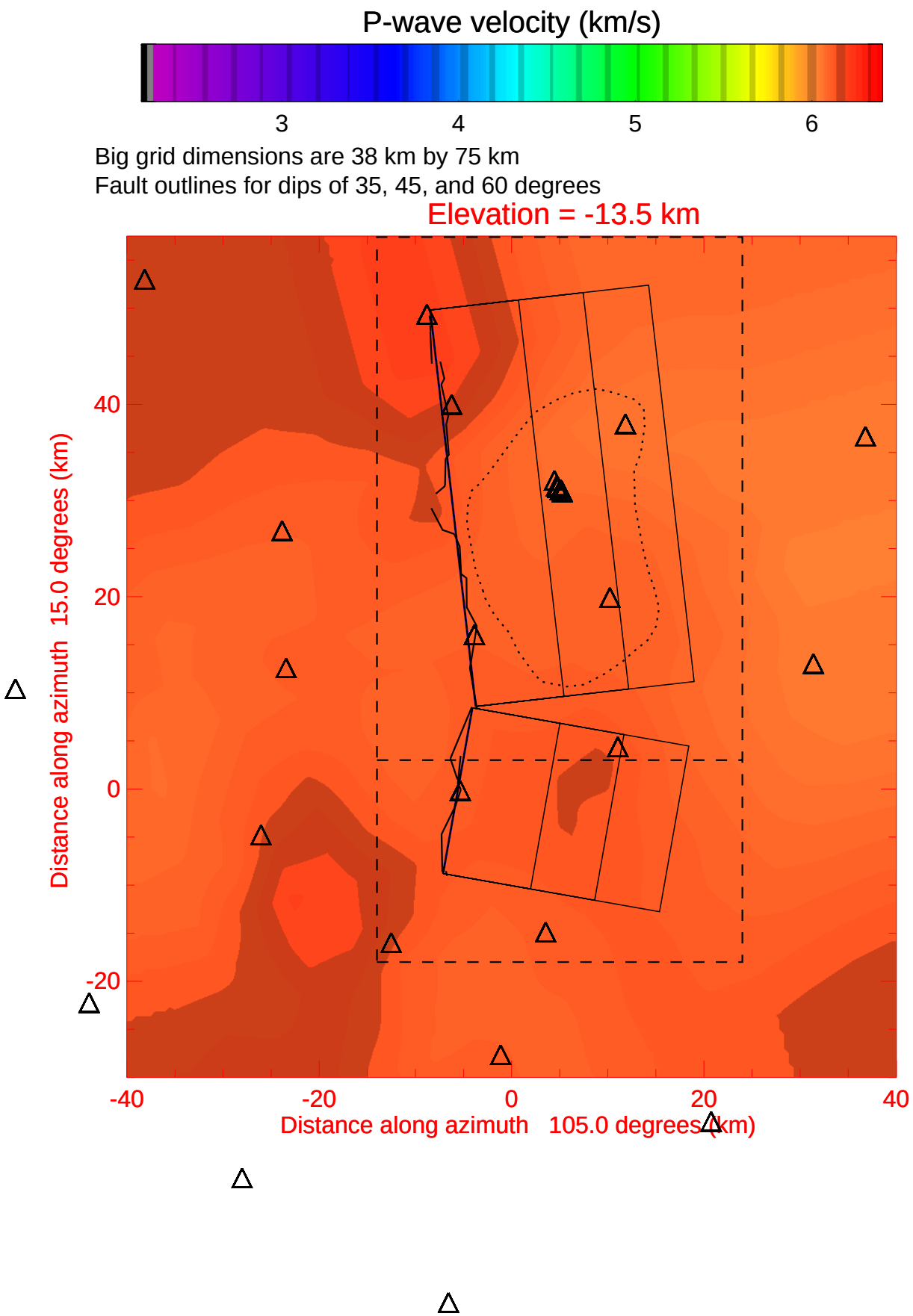
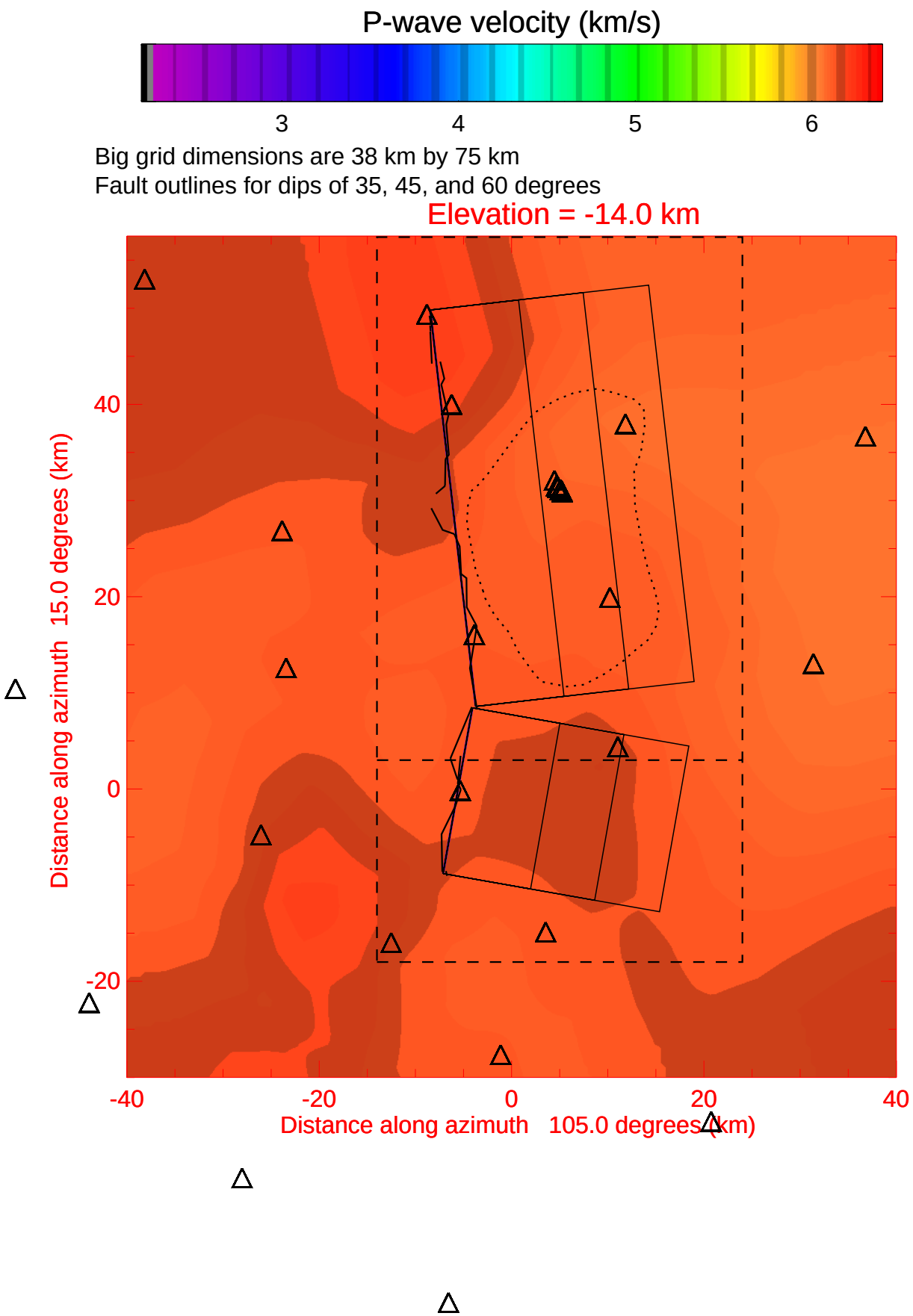
20
0
-20
Distance along azimuth 15.0 degrees (km)
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -12.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -13.0 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -13.5 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)


P-wave velocity (km/s)
3
4
5
6
Big grid dimensions are 38 km by 75 km
Fault outlines for dips of 35, 45, and 60 degrees
Elevation = -14.0 km
Distance along azimuth 15.0 degrees (km)
40
20
0
-20
-40
-20
0
20
40
Distance along azimuth 105.0 degrees (km)